ELECTRONIC DATA INTERCHANGE IN DEFENSE TRANSPORTATION

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PREFACE

In a previous assessment conducted for the Office of the Secretary of Defense, the Logistics Management Institute (LMI) found that the private sector was beginning to make extensive use of techniques for the electronic exchange of transportation information. LMI concluded that those techniques, commonly referred to as Electronic Data Interchange, or EDI, could be applied in Defense transportation and proposed that DoD undertake a demonstration test to establish the feasibility of electronically exchanging Government Bill of Lading and freight invoice information between its transportation activities and private motor carriers.

This report presents the results of that test, the conclusions that we derived from those results, and the recommendations for follow-on action.

Numerous individuals from the Office of the Secretary of Defense, Military Services, Defense Logistics Agency, Military Traffic Management Command, General Services Administration, and commercial carrier industry contributed to the success of the test. We appreciate those efforts and trust that they will result in a new era for Defense transportation.

Executive Summary

ELECTRONIC DATA INTERCHANGE IN DEFENSE TRANSPORTATION

Using electronic data interchange (EDI) techniques to pass transportation information can substantially reduce transportation paperwork in the Department of Defense. Furthermore, since most of DoD's transportation procedures are oriented to the flow of paper, electronic transmittal can revolutionize DoD's entire approach to transportation management.

The transportation industry has developed standard codes and formats for EDI. We have successfully used those standards to demonstrate the feasibility of exchanging Government Bill of Lading information electronically among a variety of DoD activities and commercial motor freight carriers.

Even the simplest application of EDI – automating exchanges of transportation information – can yield considerable benefits for shipping points and many other DoD activities: reduced clerical effort, greater accuracy, and more timely information.

For DoD to obtain the full benefits of having accurate information readily available, however, some DoD organizations – notably, the U.S. Army Finance and Accounting Center and the Military Traffic Management Command – will need to change their operations substantially. They will find it necessary to realign organizational and functional responsibilities and to change business methods, operating procedures, and control processes. The benefits, in addition to speed, accuracy, and staff reductions, will include the ability to perform functions that have never been practical before. Prepayment auditing is one important example. The ability to meet mobilization workload requirements is another.

Although the benefits from applying EDI to Defense transportation potentially are large, they will not come automatically or overnight. Implementation will require deliberate and thorough planning, coordination, and cooperation among the myriad DoD activities that route and monitor transportation movements, ship and receive materiel, and pay transportation vouchers, as well as among the commercial

carriers with whom they deal. To ensure that DoD embarks on an effective and productive EDI program, we recommend that the Assistant Secretary of Defense (Production and Logistics):

- Prepare a strategic plan for implementing EDI – a plan that encompasses all components of Defense transportation, including shipping activities, consignees, payment centers, and commercial carriers. It should address system requirements, design features, resources, and implementation schedules. It should also identify the steps of transition from the ongoing Government Bill of Lading demonstration to full-scale implementation.

- Upgrade the Transportation Operations Directorate, U.S. Army Finance and Accounting Center, to take full advantage of EDI's potential in automating the freight-payment process. As the largest transportation payment center in DoD – it pays all the Government Bills of Lading for the Army, Air Force, and Defense Logistics Agency – it will set the pace for DoD's entry into a nearly paperless transportation environment.

- Prescribe DoD's use of the EDI standards developed by the transportation industry and lead DoD's participation in maintaining them and developing new ones.

- Maintain EDI testing capability. This will encourage the Military Services, Defense Logistics Agency, and Military Traffic Management Command to explore other EDI opportunities. It will also provide for an orderly transition to program implementation.

These actions – developing a long-range plan for EDI in Defense transportation, upgrading the Transportation Operations Directorate, using industry standards, and maintaining test capability – will create an effective, broadly based EDI program in Defense transportation.

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CHAPTER 1

INTRODUCTION

BACKGROUND

In earlier studies,[1] the Logistics Management Institute (LMI) found that most of the automated data-processing systems supporting transportation management within the Department of Defense (DoD) were old and operated on hardware that ran at or near capacity. We also found that all major transportation organizations within DoD are developing replacement systems, many of which will become operational in the late 1980's and early 1990's. While the new systems will correct some of the shortcomings, most will not be able to transfer transportation information electronically from one computer to another. Yet, that electronic transfer of information, commonly referred to as Electronic Data Interchange (EDI), is commonplace in the private sector and promises to become the standard for conducting business in the future.

To ensure that Defense transportation keeps pace with developments in the private sector, the Assistant Secretary of Defense (Production and Logistics) sponsored a test to demonstrate the feasibility of using EDI technologies in a military environment. This report presents the results of that test.

EDI CONCEPTS

EDI concepts and techniques substitute electronic, or computer-to-computer, exchange of information for the paper flow of business information. This procedure is not something new. Many large organizations, including DoD, have been transferring selected information in a paperless fashion for more than 10 years.

What is new is the emergence of standards that facilitate the electronic exchange of information between independently designed and operated computer systems. Those standards – most of the commonly used standards were developed by

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[1]LMI Report ML424. *DoD Cargo Management Systems*. Heard, Thomas W., and Robert F. Rozycki; LMI Report ML517. *Electronic Exchange of Transportation Shipment Information*. Heard, Thomas W., and William R. Ledder.

industry groups[2] – define the format and data content requirements for specific business transactions, such as purchase orders or invoices. They are developed from a data dictionary which prescribes common data elements.

The transportation industry has long recognized the potential of EDI, and as a result, standards for the air, motor, rail, and ocean modes have existed for 10 or more years. Only in the past several years, however, have shippers and carriers invested in the computer hardware and software needed to make electronic interchange of transportation information an everyday occurrence. The benefits of those investments include reduced inventory through more timely and accurate shipment information, improved cash management, simplified computer operations and interfaces, and reduced administrative costs ov r those of paper-intensive operations.

THE DoD EDI TEST

To demonstrate the feasibility of exchanging transportation information electronically, DoD conducted a test that focused on two common transportation documents: Government Bills of Lading (GBLs) and freight invoices.

The GBL is the primary document used to procure transportation services for DoD. It typically comes in seven parts and is distributed to the carrier, the Military Traffic Management Command (MTMC), and the receiver (consignee) of the shipment. Freight invoices are sent from carriers to one of three DoD payment centers. The current paper system calls for carriers to submit invoice information on a Public Voucher for Transportation Charges (SF1113) document. That document summarizes shipment-specific information including charges for the services provided. Attached to it is the original copy of the GBL. After payment, the original GBL is sent to the General Services Administration (GSA) for auditing.

Two types of GBLs are used in DoD: freight and personal property. Each year DoD shippers generate approximately 1.5 million freight and 800 thousand personal property GBLs. Since they come in seven parts, GBLs alone create over 50,000 pieces of paper each working day. Cost estimates for issuing and processing

[2]Two major standards groups exist in the United States: American National Standards Institute (ANSI) and the Transportation Data Coordinating Committee (TDCC). TDCC standards were used in this DoD EDI test.

this document range from $60 to $90 million annually, most of which can be attributed to the clerical effort required to process the paper.

In the test, 13 Government activities participated as shippers/consignees (8), payment centers (3), postpayment auditors (1), and management reviewers (1). Additionally, three motor carriers participated. We focused on motor carriers because that transportation mode constitutes the vast majority of GBL movements by DoD shippers. Shippers transmitted GBL information electronically to the carriers, consignees, payment centers, and the management reviewer (MTMC). Upon delivery of the shipment, motor carriers then transmitted invoices to the payment centers. Consignees merely received the information; and, other than functional acknowledgments, they did not transmit data.

Payment centers played the key role in the test. They received electronic information from shippers and invoices from the carriers, reconciled the GBL and invoice, and transmitted payment records to GSA and MTMC. As management reviewer, MTMC compared the electronic and paper information[3] to assess information accuracy and examined completed payment records. The GSA also examined the completed payment record to determine whether the electronic information was sufficient to satisfy postpayment auditing.

Other components of the test included:

- *Data Standards.* Commercial standards published and maintained by TDCC were used. Those standards define the format and data requirements for specific business transactions.

- *Hardware.* Microcomputers were used in two types of environments: stand-alone, in which no interface with a test site's existing data processing system was required; and front-end, in which an interface was required.

  Most of the shippers operated in a front-end environment, which permits GBL information to be downloaded from a host computer to a microcomputer. The microcomputer uses software that translates the GBL information into the EDI standard format and transmits it to other test sites.

[3]The electronic transmission of data test was not used as the official record. In parallel with the test information, all test participants followed the normal procedures of submitting paper copies of the GBL and invoices, and they were used as the official record.

Most of the recipients of the electronic GBL operated in a stand-alone environment since they did not have a central data processing capability with which to interface.

- *Software.* Commercially available software, which was leased for the test, was used to translate GBL and invoice information into EDI standard formats for transmission and, upon receiving an electronic transmission, to convert the transmitted data into usable formats.

- *Telecommunications.* A commercial telecommunications network was used to transmit GBL and invoice information between the test participants. An additional service provided by the network was the electronic handling and distribution of information.

The specific objectives of the demonstration test were to determine whether EDI applications and commercial standards could satisfy Defense transportation requirements, to assess the impact that the use of those applications and standards might have on transportation operations, and to estimate the economic benefits that would result if DoD conducted much of its transportation business electronically.

The Army, Air Force, DLA, and GSA activities began testing along with three motor carriers in January 1987. The Navy and Marine Corps activities are just beginning to test.

The next chapter presents the findings from the test. Chapter 3 provides the conclusions we drew from the findings and our recommendations for establishing a major EDI program in Defense transportation. Five appendices present more detailed information on the conduct of the test and its results. Appendix A describes the test design; Appendix B discusses the EDI standards used in the test; and Appendix C presents the conventions document prepared for one of the EDI standards, the Shipping Information standard. The final two appendices, D and E, describe, respectively, the technical findings – those related to the computer hardware and software and the telecommunications network used – and the operational findings of the DoD EDI test.

CHAPTER 2

TEST FINDINGS

This chapter provides an overview of the key findings from DoD's EDI test. Findings are presented in each of several major areas: EDI standards, system operations, technical aspects, regulatory and legal issues, and costs and benefits. Detailed operational and technical findings are presented in Appendices D and E, respectively.

EDI STANDARDS

The test showed that commercial EDI standards work in a military environment; they satisfy some of the internal and most of the external business communication needs.

The EDI standards, developed and maintained by TDCC, present structured, but flexible, data formats for major business information transactions between shippers and carriers. The standards are mode-specific and exist for the rail, motor, air, and ocean industries. During the test, we experimented with five standards that are used by the motor carrier industry and their electronic trading partners. (Appendix B provides additional detail on the EDI standards.)

Conventions Required

Conventions are rules prescribing the location of specific information within a standard; they ensure consistent data usage between trading partners and thus minimize the risk of the data being misinterpreted. Although we found the standards acceptable for DoD application, we also found that considerable effort is required to create a conventions document. As DoD initiates a widespread EDI program, it will need to make substantial resources available to create and maintain standards and the conventions documents needed to assure that they are used properly. (Appendix C details the conventions used in the DoD EDI test.)

Transmission Requirements

Early in the DoD EDI test, the test participants agreed to transmit electronically all the information from the paper GBL document for two reasons: it permitted the test to begin quickly, and it facilitated examining the capability of the commercial standards to meet all of DoD's GBL information requirements.

The commercial standards clearly can satisfy DoD's GBL requirements. However, sending the entire set of GBL information electronically resulted in extremely large record sizes and that in turn, increased the telecommunication requirements and costs.

DoD can minimize record sizes and associated telecommunications costs through two actions. First, it must define the information that users actually require in their business operations and customize electronic transmissions to meet those needs. Second, it must substitute codes for free-form information. These two actions can reduce record sizes and telecommunications costs by 50 percent or more.

Standards Development

Even though the commercial EDI standards are designed to address information exchange requirements between shippers and carriers, they do not satisfy all of DoD's internal business communication needs. Fortunately, the standards a· :reated from a common data dictionary. DoD's internal transportation communications requirements can be satisfied by rearranging the data elements found in that dictionary into common standards for internal use.

Efforts are now underway to do this for the Defense Transportation System (DTS), which supports DoD's international transportation requirements. DTS management procedures and documentation requirements, which are developed and maintained by the Defense Logistics Standards Systems Office (DLSSO), are in the process of being modernized. DoD needs to develop similar management procedures and documentation requirements for domestic transportation movements, which are now controlled by a separate set of procedures, the Defense Traffic Management Regulation (DTMR).

OPERATIONS

The most important lesson learned in the test is that EDI has the potential to fundamentally change DoD's transportation operations. As an organization substitutes the electronic flow of business information for the paper flow, many of its business methods, organizational alignments, operating procedures, and control systems will be called into question. Those methods that worked well for paper flows will be inadequate in an electronic environment; the organization and procedures that once served the organization well, now must be modified.

Changes Required

The need for such changes in methods, organization, procedures, and control was very clear during the DoD EDI test. The transportation payment centers are the components that most require changes. In the current paper environment, carriers must send the payment centers a public voucher with the original copies of the GBLs attached. Together, those papers serve as source documents for information to process payment, and they provide a control system to assure that the transportation services were procured by a DoD shipping activity.

While the electronic exchange of invoice data from carriers to payment centers is technically straightforward, maintaining the necessary financial controls is not. As demonstrated in the test, to maintain financial control, DoD shippers need to transmit information on each GBL shipment to the payment center. Then, as the payment center receives transportation invoices electronically from the carriers, those invoices need to be reconciled against the pre-positioned shipment information. Because the pre-positioned shipment information must necessarily flow from numerous DoD shipping points to the payment center – a process that today's paper environment does not require – the impact on DoD's financial control operations is dramatic. Payment centers need to reorient their operations and develop applications software to receive and reconcile invoices against pre-positioned shipment information; and DoD transportation activities need to change the skill mix of their staffs so they can operate effectively in the new electronic environment.

Although the above change in financial control demonstrates perhaps the most dramatic EDI effect on a business operation, we also found other examples in the test. For example, DoD shipping points under EDI operations must send timely and

accurate GBL information to the payment centers. Yet, many of DoD's shipping activities are organized such that significant manual annotations to the GBL occur after it is printed. Since the data files used to print the GBL are the same as those used to send information to a payment center, we run the risk of sending inaccurate shipment information against which transportation invoices are to be reconciled. That risk is not an acceptable one in an EDI environment. The shipping activities either must adjust their loading operations so that shipment information is accurate to begin with or develop the capability to update the GBL data files when the GBL is changed.

Enhancing Systems

Other examples of how EDI can affect business operations can be seen at those organizations where little or no automation currently exists. Prime examples of such organizations are the MTMC area commands. In today's paper environment, they receive a copy of each GBL – close to 5,000 each working day. On a statistical sample basis, they manually review the GBL to ensure that the proper mode and carrier were selected for the movement and that other standard operating procedures were followed.

In an EDI environment, the MTMC area commands will receive the same information electronically. However, little will be gained from the use of EDI if that information is then printed on paper and the cumbersome manual review continued. Ideally, the quality control check should be automated, resulting in the more timely identification of costly routing and other errors. Other management functions that are currently not possible but may become feasible in an electronic environment include tracking shipments, evaluating carrier performance, and identifying consolidation and backhaul opportunities. These enhancements are not achieved by merely receiving information electronically but rather by building the automated systems that receive and use the electronic information to improve business operations.

Trading-Partner Relationships

Private-sector experience shows that the successful application of EDI hinges on strong and continued trading relationships with business partners primarily

because extensive coordination is required to establish and maintain an effective electronic trading relationship.

Most of DoD's transportation services are procured on the basis of the lowest cost tender for service from a commercial carrier. In the freight arena, tenders for service can be submitted at any time, and that intermittency often results in business relationships that are short and susceptible to rapid change.

Use of tenders for procuring transportation services presented a problem in the DoD EDI test. At several test sites, carriers with whom we had established electronic trading relationships were suddenly no longer moving DoD freight. They had been replaced by competing carriers who had submitted lower tenders for service. Simply put, this method for buying transportation services is not conducive to implementing an EDI program.

However, DoD has other methods for procuring transportation services. One of those methods, Guaranteed Freight, is also based on awarding movements to the low-cost bidder, but it attempts to strengthen the business relationship by awarding the traffic for an established period, typically 1 year, with an option to renew. This method permits DoD to create a continuing business relationship with a carrier and gives the carrier the incentive to invest in EDI capability.

Each of the Military Services and DLA buys transportation services under Guaranteed Freight arrangements. Yet, the extent to which they buy those services varies widely. DLA, for example, moves more than 90 percent of its traffic under Guaranteed Freight, while the Military Services move less than one-third of theirs that way.

Summary

Implementation of a full-scale DoD EDI program will require major operational changes. Senior DoD transportation managers will be called upon to identify new operating requirements, coordinate procedural changes, and define information requirements before the full benefits of EDI can be realized.

TECHNICAL ASPECTS

Although business managers will face the primary challenge in using EDI, many technical issues must also be dealt with. This section highlights two technical

areas – communications, and computer hardware and software – that will require further analysis before the DoD can implement an EDI program.

Communications

Conceptually, DoD has two options for communicating electronically with business trading partners: it can communicate directly or it can use a third-party service. Direct communication is most appropriate in a business operation involving only a small number of electronic trading partners. However, as the number of electronic trading partners grows, a direct communication setup becomes impractical because of the expense of leasing lines and the difficulty in scheduling dial-up telephone connections.

Third-Party Service Providers

Private-sector experience shows that direct communications links tend to be replaced with third-party communications when the number of trading partners exceeds 10. Third-party communications services have some advantages: they lower set-up costs and streamline operations by matching communications speeds and protocols between dissimilar computers; they coordinate transmission schedules between time zones; and they transmit to multiple locations. In a sense, the third-party network service functions as an "electronic mailbox": users dial-up the network and deposit their business communications, and the network then stores these communications and forwards them to end users.

Controlling Communication Costs

In the DoD EDI test, we used a third-party network service because we envisioned an EDI program that will ultimately include several commercial carriers, numerous DoD shipping points and consignees, three payment centers, and a variety of other defense transportation activities. During the test, we used McDonnell Douglas EDI*Net, and it provided almost flawless communications services. However, the costs of those services can be significant.

The average cost of electronically transmitting one GBL, using the prescribed EDI standard, was about $1.20. Since each GBL was distributed electronically to as many as four business partners (carrier, consignee, payment center, and MTMC), the total communications costs could reach $4.80 per GBL.

As the DoD moves from an EDI testing mode to a production environment, we anticipate that the communications costs will drop dramatically, perhaps to as low as $1.20 to $1.80 for total electronic distribution of a GBL. Some of the factors that will contribute to this decrease include transmitting during nonprime-time hours when communications costs are reduced, taking advantage of volume discounts, and customizing the data to meet the user's requirements and reduce the amount of data transmitted. Furthermore, use of in-house Defense Data Network (DDN) communications to link with commercial network services could reduce that cost further.

Communication Decisions

The DoD EDI test clearly showed that communications will become a major cost component in a full-scale EDI program. The test results coupled with the experience of private sector companies show that the concept of network services with "electronic mailbox" and "store and forward" or "store and retrieve" capabilities is the preferred method for conducting EDI communications. Ultimately, however, DoD will need to decide whether to buy these network communication services from the commercial sector or build the capabilities in-house and link them to the DDN.

Hardware and Software

Microcomputers were used in the DoD EDI test for communicating and processing transportation business information. They were used in both a front-end environment and as stand-alones. In the front-end environment, the microcomputer was interfaced with an existing host computer. Most of the shipping points in the test operated in a front-end environment, i.e., the GBL was downloaded from the host computer to the microcomputer where it was processed and transmitted. Most of the recipients of GBLs and invoice information operated in a stand-alone environment; they had little or no data-processing capability with which to interface.

The software used for the microcomputers was a commercial package that we leased from EDI, Inc. Known as TELINK, it performs many functions including translating GBL information into the EDI standard formats for transmission.

Systems Interfacing

The hardware/software configuration used in the test – microcomputers coupled with the TELINK software package – was very effective. Nevertheless, a substantial amount of effort was required to provide the interface programming for the front-end environment. (Interface programming creates data files to download or upload between the host and the front-end computer.) The development of that software required from 10 man-days at some test sites to 75 man-days at others. The primary reason for such disparity was the complexity of the database systems in the host computers. In spite of the challenges in developing the interface software, once developed, it worked.

Customized Programs

An important lesson learned in the DoD EDI test was the need to customize the TELINK software package at each test site to match the site's operating conditions. Some test shipping points, for example, did not have automated GBL preparation capability. Instead, GBLs were created manually on a typewriter. At those sites, the TELINK package was customized to permit GBL information to be entered onto a screen. However, this duplication of effort, first typing a GBL and then entering GBL information into the microcomputer, is counterproductive.

At some sites, special applications software had to be developed to realize the full benefits of EDI. Many of the sites receiving the GBL information had little or no capability to process it. Little is gained if electronically exchanged information is printed on paper in preparation for the next processing step. A successful EDI program within the DoD will have to be accompanied by substantial investments in application software to process the information effectively and efficiently.

Computer Selection

Microcomputers were used to reduce costs and speed the implementation of the demonstration test. As EDI becomes the preferred method for exchanging Defense transportation information, however, more powerful hardware will be required at many activities, particularly the larger ones.

To determine when a microcomputer would no longer be the appropriate hardware choice for an activity, we analyzed the throughput characteristics of high-powered microcomputers (see Appendix E for details). We found that a sophisticated

microcomputer can process a large number of business transactions. We also found that the decision point for moving to a more powerful computer depends on a variety of factors, including the types of business transactions to be electronically transmitted, the size of the transactions, the capabilities of the host computers, the communication speeds, and other technical and operating considerations.

Although the point at which larger processing machines should be substituted for microcomputers is not definite, all but the largest transportation activities – the finance centers, major DLA and Service depots, MTMC, and GSA – should be able to use microcomputers to conduct business electronically.

REGULATORY AND LEGAL ISSUES

We have found that many of the EDI concepts and techniques are so new to DoD that the legal and regulatory issues surrounding their use have not been fully resolved. Ultimately, several organizations need to act in concert to review and modify regulations such that DoD information, particularly GBL and freight invoice information, can be exchanged electronically. These organizations include, at a minimum, the General Accounting Office (GAO), GSA, and MTMC.

Regulatory Responsibility

The GAO is responsible for administering the regulations that prescribe Federal transportation procedures, including the use, generation, and auditing of GBLs. In turn, GAO has delegated the audit and much of the regulation responsibility for the GBL to GSA. (The appropriate regulations and procedures are found in Chapter 101, Code of Federal Regulations, Title 41, *Public Contracting and Property Management.*) Finally, MTMC maintains the DTMR, which governs the preparation and use of GBLs within DoD.

In addition to its administrative responsibilities, GAO maintains the general audit standards for all automated data-processing systems.[1] Those standards require that automated systems satisfy six criteria: adhere to management policy; provide clear audit trails; include necessary controls to protect against information loss or error; operate efficiently and economically; meet legal requirements; and

[1]Comptroller General of the United States. *Standards for Audit of Governmental Organizations, Programs, Activities and Functions.* (Washington, D.C.: United States General Accounting Office, 1981 Revision).

provide adequate system documentation. In addition, evidence for audit information must be sufficient, competent, and relevant so that the auditor may make reasonable judgments and conclusions. While these standards do not preclude the use of electronic information, they require that evidence take any of four forms: physical, testimonial, documentary, or analytical.

As GAO, GSA, MTMC, and other organizations modify existing regulations to permit DoD to use EDI, four major areas of legal interest need to be addressed:

- *Authentication.* The standard convention in paper-driven systems used to authenticate documents is the signature. In some countries, replacing the signature with electronic transmission conventions is a challengeable legal technicality, and in others it is merely an issue of users agreeing on new authentication conventions.

  In the United States, a signed bill of lading is not a legal requirement. Thus, case-by-case agreements between shippers, carriers, and other transportation companies could replace the signature with new terms for authentication, such as codes, passwords, and addresses for electronic transmission. In fact, electronic authentication could reduce the incidence of fraud by eliminating the possibility of forged signatures.

- *Contract Formation.* In today's business environment, contractual terms are commonly reprinted on the reverse side of each bill of lading. That information cannot feasibly accompany each transaction in electronic transmissions. In the private sector, companies preserve the terms of the bill of lading by referencing prenegotiated terms with standard codes. Those terms may be made available in paper form from the carrier or Government regulating agency or by input to a database using the appropriate code. In addition, while some type of manifest information always needs to accompany the freight to its destination, it does not have to be an original bill of lading.

- *Evidentiary.* In issues of litigation, the evidentiary competence of electronic data has been upheld in some state courts. In addition, Federal rules do not restrict electronic data as long as the information complies with all requirements of the corresponding document and is used by a company in the course of its regular business. For example, electronic data are subject to the same legal retention periods as corresponding paper documents. Finally, the use of electronic data for normal business transactions such as the exchange of invoice, payment, and shipment information improves the availability and timeliness of relevant information over conventional systems.

- *Negotiability.* The issue of negotiable bills of lading in electronic data exchange is especially important in the private sector where many types of

bills of lading are used as credit documents to trade and sell goods during transportation. While the GBL is not negotiable in the same manner as commercial bills of lading, the original GBL must, under existing procedures, be presented before the carrier can receive payment. The issue of GBL negotiability hinges on DoD acceptance of electronic shipment information in place of the original GBL to support payment of carrier freight bills. The validity of electronic shipment information may be established by contractual agreement with commercial carriers and by changing DoD transportation policy to include electronic images as valid substitutes for the original GBL.

Summary

Private-sector companies have been transacting business electronically, including invoicing, for several years. These same opportunities are available to the DoD. Before they can be garnered, however, several legal and regulatory restrictions need to be lifted.

COSTS AND BENEFITS

The true costs and benefits of an EDI program in DoD transportation are very difficult to pinpoint with any reasonable precision. However, the DoD EDI test provided a foundation for identifying the major cost categories and benefit areas that are likely to accrue.

Defense transportation will incur installation and operating costs in implementing a full-scale EDI program. The installation costs are the one-time costs that arise from setting-up the EDI program, and the operating costs are those costs required to operate the program.

Installation Costs

DoD will incur four major categories of installation costs: hardware, software, telecommunications, and manpower.

Hardware

Hardware costs depend principally on the design of the EDI system. Conceptually, three design alternatives exist: a mainframe application, a micro-computer application, or a combination mainframe/microcomputer.

A full-scale EDI program will likely require some type of combination mainframe and microcomputer application. That is, some DoD transportation activities will require a mainframe computer to conduct business electronically, while others will conduct business using a microcomputer, either as a stand-alone or front-end processor.

Larger activities, notably finance centers, GSA, and major distribution depots, may choose to conduct EDI on mainframe computers. Assuming those activities have sufficient capacity on their existing mainframe computers, the hardware costs for a comprehensive EDI program may be modest. However, those hardware costs may be offset by higher software costs.

Smaller activities will find hardware costs confined primarily to the cost of an IBM-compatible microcomputer and various accessories. These costs are readily identified.

Before an accurate assessment of the hardware costs associated with an EDI program can be made, several system design issues need to be resolved. They include the total number of participating transportation activities and the specific computer support that each requires.

Software

Software costs are necessarily driven by decisions on hardware design. For those large installations that choose to use a mainframe, the cost of software is difficult to estimate. Some activities may find that existing applications systems require only small-scale changes to provide EDI capability. Others, however, may elect to develop entirely new applications systems in conjunction with EDI software development efforts. In the latter case, substantial software development costs may be incurred.

For those activities designing their EDI programs around microcomputers, the software costs are more readily available principally because the DoD EDI test has identified most of them.

Telecommunications

The telecommunications cost of a DoD-wide EDI program are highly variable, with the prime determinant being whether the DDN provides the services or they are obtained from commercial telecommunication services.

If commercial telecommunication services are used, the cost of installation will be minimal – the service companies have already made the investments in equipment, document handling, and distribution software. Should the DoD elect to use the DDN, installation costs will be incurred to install the communication lines, to develop the software, and to procure the hardware.

Manpower

Conceptually, local activity manpower and "corporate" manpower resources are required to implement a DoD-wide EDI program. Local activity manpower includes the management and technical personnel at the transportation activities who will alter business methods and operating procedures, finalize operating system designs, program software, and participate in the installation of the EDI system.

Corporate manpower encompasses personnel who formulate a master plan for EDI implementation, oversee and coordinate the execution of the plan, and provide troubleshooting capability when necessary. Again drawing from the experience of the private sector, a strong centralized EDI corporate group will be required to make EDI work in DoD.

Operating Costs

Understandably, the continuing costs of an EDI program are closely tied to overall system design. Regardless of the design, however, we believe that the dominant operating cost will be communications. That cost will be comprised of two main components: charges by networks for handling messages and charges by telephone companies and other carriers for telecommunications services.

Each of these components has fixed and variable charges. For example, a service network generally has a monthly charge that is independent of EDI volume; it also has variable charges based on the number of EDI messages exchanged. Some examples include local or long distance telephone charges and message unit costs.

Beyond communications costs, other operating costs include hardware and software maintenance, supplies, and workspace.

Benefits

As with costs, true benefits are difficult to pinpoint until program planning is completed. However, conceptually, both direct and indirect benefits or savings will accrue from an EDI program.

Direct Cost Savings

Direct cost savings result primarily from reductions in clerical processing of GBLs and other paper documentation. Some of the major categories in which these reductions will occur include:

- *Communications Costs.* Activities will not have to call the commercial carriers to arrange for shipment pickup, nor will they need to mail a copy of the GBL document to the consignee and MTMC area command.
- *Translating and Transcribing Costs.* Activities will not have to change GBL information into a format for internal use so that it can be processed.
- *Key Entry Costs.* Data will no longer need to be entered manually into a terminal or computer. This will reduce data-capture costs and the costs associated with resolving errors in data capture.
- *Matching Costs.* The physical matching of two or more paper documents will be obsolete. For example, the consignee will not have to match the shipment notification copy of the GBL with the carrier's copy of the GBL when the shipment is delivered.

Based on the DoD EDI test, we expect all activities participating in an EDI program to realize substantial direct cost savings. However, the savings will be greatest at payment centers, whose personnel currently receive and process thousands of freight and other transportation invoices daily.

Indirect Cost Savings

Indirect cost savings result from improving a business operation so that it can perform functions not previously possible in a paper environment. Examples of improved operations brought about by the accurate and timely transmittal of GBL information include prepayment audits of shipments, better control of inbound

shipments, enhanced shipment tracking, and identified shipment consolidation and backhaul opportunities.

Indirect savings are, by far, the most difficult to quantify, and, yet, the private sector claims that they far exceed direct savings.

Summary

An accurate assessment of the costs and benefits to implement and operate a DoD-wide EDI program hinges on issues that have not yet been resolved. Key among those are the number of activities that will participate in the program, the design of the EDI system (microcomputer or mainframe application), and the decision to use in-house or commercial telecommunications capability.

CHAPTER 3

CONCLUSIONS AND RECOMMENDATIONS

Test findings and extensive private-sector experience clearly show that the use of EDI techniques to transmit DoD transportation information is feasible and has the potential to substantially reduce both transportation paperwork and costs. Furthermore, the use of electronically transmitted information will revolutionize DoD's entire approach to transportation management.

The DoD EDI test results unquestionably established the technical feasibility of EDI in a military application. They also established that numerous and fundamental changes to DoD transportation operations are needed before the full benefits of EDI can be realized. We believe these changes will result in a realignment of organizational and functional responsibilities as well as substantial modifications in business methods, operating procedures, and control processes.

Although the benefits of applying EDI to Defense transportation are potentially significant, we conclude they will come neither automatically nor immediately. Successful implementation requires deliberate and thorough planning, coordination, and cooperation among the myriad DoD activities that route and monitor transportation movements, ship and receive materiel, and pay and audit transportation vouchers.

To assure that DoD embarks on an effective and productive EDI program, several actions need to be undertaken immediately.

STRATEGIC PLANNING

One of the keys to a successful EDI program is early and comprehensive planning. The DoD's program is no different.

> **Recommendation**. The Assistant Secretary of Defense (Production and Logistics) prepare a strategic plan for implementation of EDI concepts and techniques in Defense transportation.

The plan should focus on the EDI opportunities associated with the movement of freight within the Continental United States. Other EDI opportunities for personal property, international, and passenger movements should be addressed at a later date, following success in the motor freight area.

The plan should be structured into short- and long-range initiatives. In the short-range, the plan should identify the specific EDI applications that need to be pursued and it should address the system requirements, design features, resources, and implementation schedules associated with those applications. It should be designed to substantially reduce paperwork and associated costs, enhance transportation business practices, and provide flexibility for expanding into other opportunity areas. Finally, the short-range program plan must be manageable. The private sector has clearly shown that EDI is successfully applied when management focuses its efforts on one or a small number of EDI opportunities. Attempts at broad-scale applications tend to dissipate effort.

PAYMENT CENTER OPERATIONS

As the largest transportation payment center in DoD, the U.S. Army Finance and Accounting Center (USAFAC) is a major component of any Defense EDI program. In fact, it is the pacing activity. To assure that its operations support a comprehensive EDI program:

> **Recommendation**. The Assistant Secretary of Defense (Production and Logistics) upgrade the Transportation Operations Directorate at USAFAC.

The upgrading should concentrate on designing operations to take full advantage of EDI's potential in automating the freight payment process. System development will necessarily include identifying new, EDI-compatible business methods, operational procedures, and internal controls that assure compliance with governmental accounting, payment, and auditing requirements. For those processes in which some paper will likely remain, the enhancement should concentrate on improving productivity through increased office automation, work simplification, and better facilities layout.

Although the above recommendation focuses on DoD's largest transportation payment center, two other DoD payment centers, the Navy Material and Transportation Office and the Marine Corp Transportation and Certification

Branch, need to be actively involved. Their participation in USAFAC's operational upgrading holds open the possibility for additional productivity gains either by similar upgradings at those activities or through consolidation of DoD's transportation payment functions into one organization.

USE OF STANDARDS

Since the commercial carriers are inextricably linked to DoD's transportation operations, we need to maintain the capability for easy and accurate communication.

> **Recommendation.** The Assistant Secretary of Defense (Production and Logistics) prescribe the use of industry-developed EDI standards in DoD's transportation operations.

By using those standards, DoD activities will be able to readily exchange transportation information with their commercial trading partners in all modes of transportation.

Commercial standards will not, however, meet all of DoD's internal information exchange requirements. For the requirements that commercial standards cannot meet, DoD must create standards. A vehicle for creating those DoD-unique standards now exists. That vehicle, the Modernization of the Defense Logistics Systems (MODELS), is a DoD upgrading of its systems capabilities to communicate vital logistics information internally. A significant portion of that effort is targeted at defining information requirements and creating standardized data formats that are similar in architecture to commercial EDI standards.

The Assistant Secretary of Defense (Production and Logistics) should continue his support of the MODELS effort and encourage the DoD transportation community to actively participate in the creation of the standards. This effort could ultimately streamline transportation logistics operations by establishing one set of information exchange standards for use in the Continental United States, international movement, and in-theater transportation.

EDI TESTING

Although the primary objective of the DoD EDI test has been achieved, much can be gained through modest investments in maintaining testing capability. First, as EDI program plans are finalized and production systems built, they will need to be tested before full-scale implementation. Second, EDI efforts have been well received

by the transportation community and they are now exploring other opportunity areas. Maintaining testing capability will encourage local initiatives.

> **Recommendation**. The Assistant Secretary of Defense (Production and Logistics) encourage the DoD transportation activities continue to maintain the ability to transmit and receive transportation information electronically.

To assure continued testing capability, the Office of the Secretary of Defense will need to encourage the Military Services, DLA, and MTMC to pool their resources and to share their successes and failures as they explore other EDI applications.

SUMMARY

These actions – developing long- and short-range plans for EDI, upgrading the Transportation Operations Directorate, using industry standards, and maintaining test capability – will set the stage for an effective, broadly based EDI program in Defense transportation.

APPENDIX A

TEST DESIGN

The objectives of DoD's Electronic Data Interchange (EDI) test were to determine whether EDI applications and commercial standards could satisfy Defense transportation requirements, to assess the impact that the use of those applications and standards might have on transportation operations, and to estimate the economic benefits that would result if DoD conducted much of its transportation business electronically. This appendix describes the existing flow of paper documentation that is part of today's DoD transportation business process and presents the test scenario, technical approach, and operational procedures used in the DoD EDI test.

CURRENT DOCUMENTATION FLOW

We designed the DoD EDI test to substitute electronic shipment and invoice information for the existing flow of Government Bill of Lading (GBL) and public voucher information, respectively. The GBL is the primary document used to procure transportation services for DoD. It is typically prepared in seven parts. Freight invoices are prepared by the carriers on a Public Voucher for Transportation Charges (SF1113) and sent to one of three DoD payment centers. This section describes the current paper flow for those two documents.[1]

Figure A-1 shows the distribution and information flow of the GBL from its generation through postpayment audit and the key activities involved in that flow. The GBL is a serially numbered, controlled document that is used to procure transportation and related services from commercial carriers. When a GBL is signed by the carrier, it becomes a legal contract.

The GBL is issued by authorized transportation officers at a DoD shipping location. Once it is prepared and signed by the transportation officer or designated

[1]The procedures differ slightly depending on the payment center involved. In this appendix, we describe the flow of the GBL and invoice as it occurs for the U.S. Army Finance and Accounting Center (USAFAC), the largest of the payment centers.

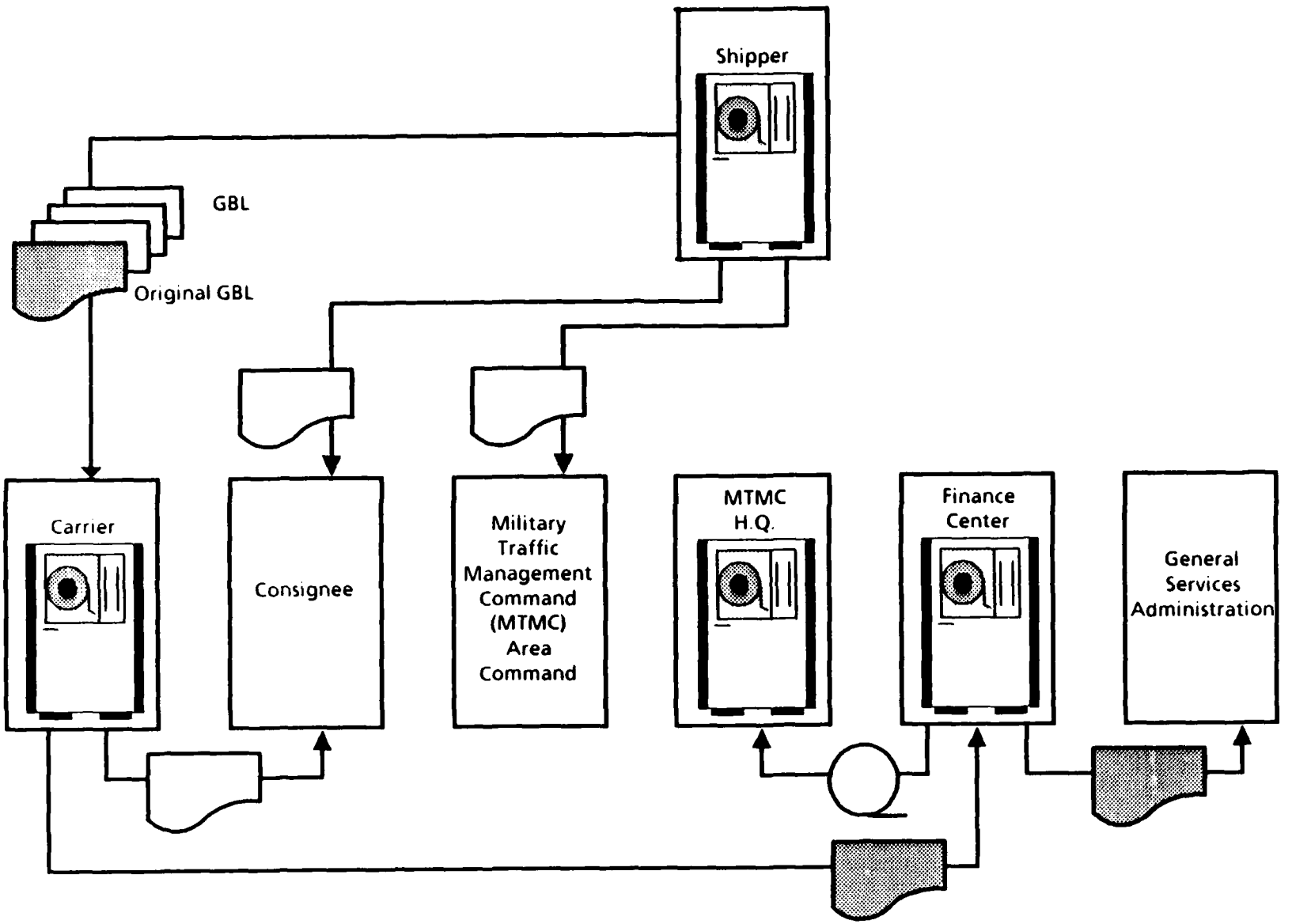


FIG. A-1. GBL DISTRUBITION AND INFORMATION FLOW

agent, all copies are turned over to a carrier. Upon receiving the GBL from the shipper, the carrier's driver or agent acknowledges receipt of the GBL and the shipment by filling in the date the shipment was received and the signature of the carrier's agent. The carrier then retains the original, which is attached to the invoice sent to the payment center, and three copies. The remaining three copies are returned to the shipper. The current GBL distribution is as follows:

- The payment center receives the original GBL signed by the carrier certifying delivery and public voucher from the carrier. If the original GBL and public voucher are complete and meet all edit checks, funds are disbursed to the carrier and the completed payment documents are forwarded to the General Services Administration (GSA) for rate audit. Selected shipment information is also extracted from these documents for MTMC's Freight Information System (FINS).
- The shipper retains one copy for the record.
- The consignee receives one copy from the shipper for information and planning.
- One of the two MTMC Area Commands receives a copy from the shipper for analyzing shipping activity and preparing traffic management reports.

Two types of GBL are used in DoD: freight and personal property. Each year DoD shippers generate approximately 1.5 million freight and 800 thousand personal property GBLs. Thus, GBLs alone generate more than 50,000 pieces of paper each working day at an estimated issuing and processing cost of $60 to $90 million a year, primarily the labor cost to process the paper.

TEST SCENARIO

The DoD EDI test was designed to use electronic shipment and invoice information in place of the existing GBL and Public Voucher documents. Twelve DoD activities representing shippers, consignees, payment centers, a management reviewer [MTMC's Eastern Area (MTMC-EA)], and a postpayment auditor (GSA) participated in the test. Three motor freight carriers also participated; we focused on motor carriers because most DoD shipments use that transportation mode. Table A-1 lists the specific test activities and their roles.

In the test, DoD shippers transmitted GBL information electronically to carriers, consignees, payment centers, and the management reviewer (MTMC-EA).

TABLE A-1

TEST ACTIVITIES

Activity	Role
Camp Lejeune Marine Corps Base Jacksonville, NC	Shipper, consignee
Defense Depot Mechanicsburg Mechanicsburg, PA	Shipper
Dover Air Force Base Dover, DE	Shipper, consignee
Marine Corps Logistics Base Albany, GA	Shipper, consignee
MTMC-Eastern Area Bayonne, NJ	Management review
Navy Material Transportation Office Norfolk, VA	Finance center
New Cumberland Army Depot New Cumberland, PA	Shipper
Naval Supply Center Charleston Charleston, SC	Consignee
Naval Supply Center Norfolk Norfolk, VA	Shipper
Robins Air Force Base Warner-Robins, GA	Shipper
Transportation Voucher Certification Branch, Marine Corps Albany, GA	Finance center
U.S. Army Finance and Accounting Center Indianapolis, IN	Finance Center
General Services Administration Washington, DC	Postpayment auditor
Consolidated Freightways Portland, OR	Motor carrier
Overnite Transportation Richmond, VA	Motor carrier
Schneider National Green Bay, WI	Motor Carrier

Consignees and MTMC-EA received the shipment information for processing; other than functional acknowledgement, they did not transmit data.

The key function in the test scenario was the freight payment. That function included the receipt of GBL and invoice information by the payment centers. Figure A-2 shows the electronic information flow for the freight payment function. The payment center receives both shipment information from shippers and invoices from motor carriers for reconciliation. This is not possible in the paper-oriented freight payment environment because shipment information is not pre-positioned at the payment centers by DoD shippers. Reconciled test records were then transmitted to GSA and MTMC for purposes of determining whether the electronic information was sufficient to satisfy postpayment auditing.

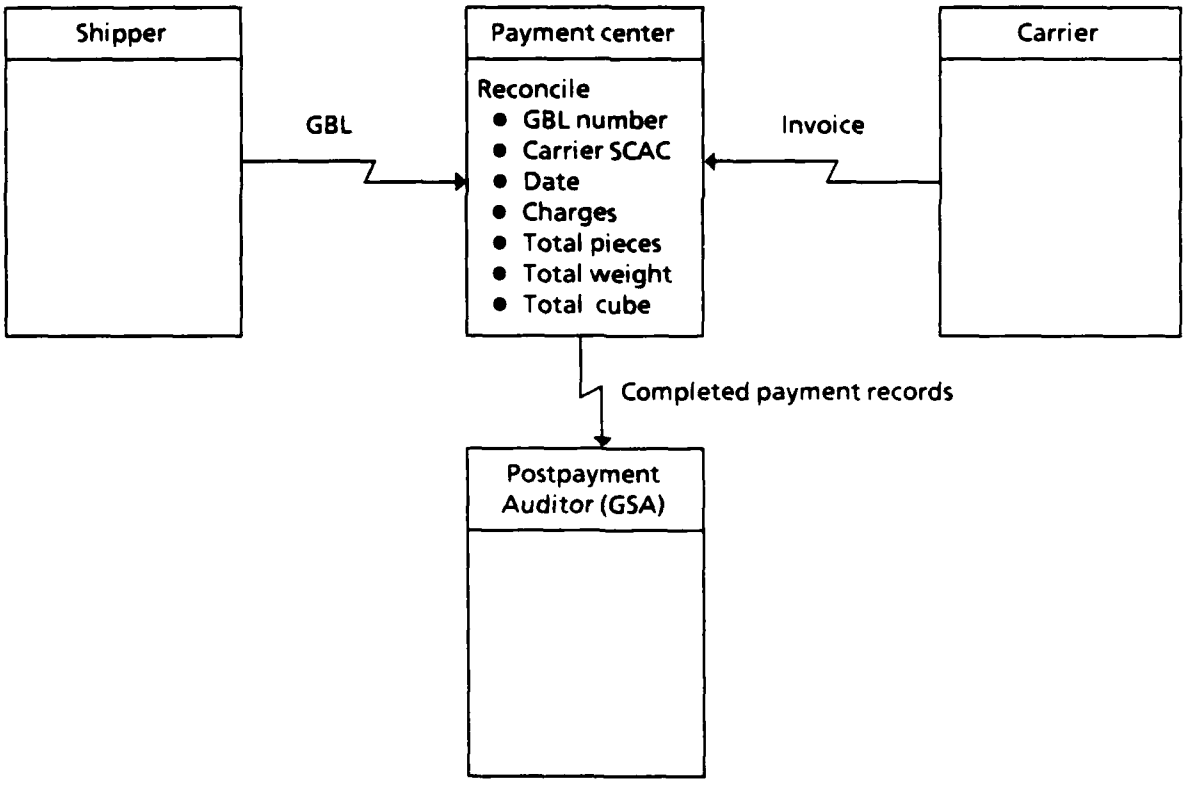


FIG. A-2. ELECTRONIC INFORMATION FLOW FOR THE FREIGHT PAYMENT FUNCTION

A number of planning factors were considered in designing the test scenario.

- *Commercial Standards.* Commercial standards – alternatively referred to as transaction sets – were used to define the format and data requirements for specific business transactions. Existing standards published and maintained by the Transportation Data Coordinating Committee (TDCC) were used in the test. TDCC's Transaction Set #204 – Shipment Information for motor carrier applications – was used for the GBL requirements specified in the Defense Transportation Management Regulation (DTMR). TDCC's Transaction Set #210 – Freight Details and Invoice – was used to receive invoices from test motor carriers. Three other TDCC standards were used to support the test. Appendix B presents additional detail on the commercial EDI standards.

- *Parallel Operations.* The electronically transmitted data were not used as the official payment record during the test. In parallel with the test information, test participants followed the normal procedures of submitting paper copies of the GBL and Public Voucher. Those paper copies were used by the payment centers as the official record.

- *Test Volume.* The DoD EDI test was designed to transmit a low volume of information electronically. Experience in the private sector showed that such a design would provide considerable and valuable experience at a low cost.

- *Implementation.* High priority was placed on launching the test quickly because of the great interest in the concepts being tested and the need to keep pace with developments in the private sector and influence the design of new DoD transportation systems.

To carry out the test, we selected a technical approach that minimized problems at the participating activities, facilitated quick implementation, and held costs and resource requirements to a minimum. The following section describes our technical approach in more detail.

TECHNICAL APPROACH

In selecting the test hardware, software, and telecommunications, we relied heavily on proven commercial applications to substitute electronic information for the GBL paper flow. Figure A-3 shows the technical approach used to facilitate the electronic exchange of information between each test activity. In the balance of this section, we describe the test hardware, software, and telecommunications configuration.

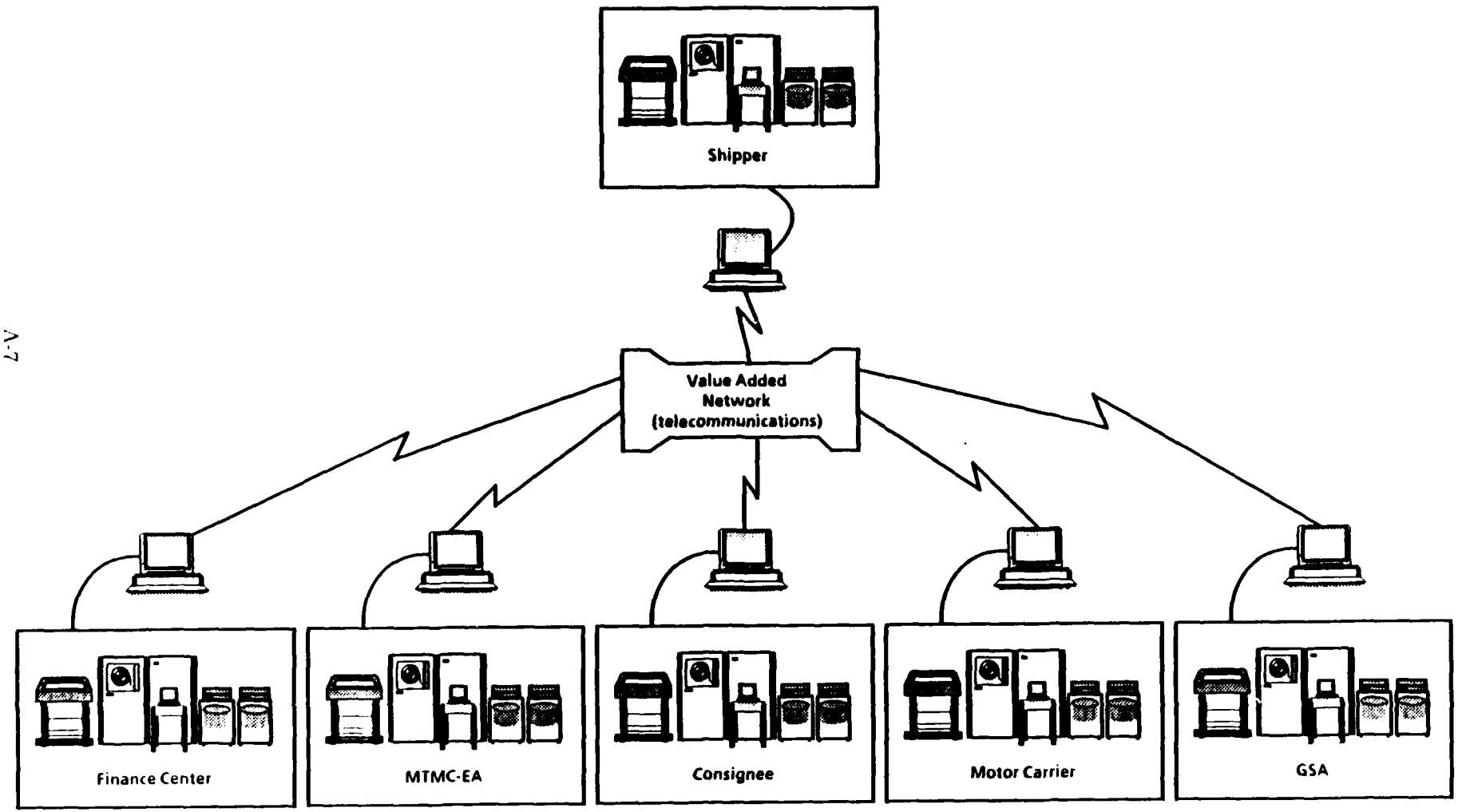


FIG. A-3. DoD EDI TEST DESIGN

Hardware

We used microcomputers to handle all EDI processing requirements. They functioned either as "front end" EDI processors to a mainframe or as "stand-alone" EDI processors. (Appendix E, Technical Findings, describes the front-end and stand-alone environments in more detail.) By using microcomputers, we restricted the required programming to application systems and were able to use low cost, "off the shelf" EDI software.

Software

We used translation, communications, and interface software to facilitate the microcomputer front-end or stand-alone environments.

Translation

The translation software generated EDI standards from user-unique images, transmitted those standards over a telecommunications link to a receiving activity, and then interpreted the incoming EDI standards into the recipients unique format. In a front-end application, the user-unique image was downloaded or uploaded to the application system. In a stand-alone environment, user information was obtained through fill-in-the-blank screen input or processed through customized application programs in the microcomputer. The translation software used in the test, TELINK, was leased from EDI, Inc., a subcontractor to LMI for the test.

Communications

The communications software enables a microcomputer to emulate the parameters of the mainframe application system to ensure compatibility. It also links, using a specified protocol, the microcomputer with a telecommunications network. The communications software packages used in the test, Cleo 2680/3780 + and Crosstalk, along with the modems, were purchased from commercial vendors.

Interface

Interface software was necessary only for those activities that operated in a front-end environment. It prepares files of GBL records within the application system in a format prescribed by the translation software so that the records can be downloaded to the microcomputer. Test activity personnel developed this software.

Telecommunications

The telecommunications support for the test was provided by a third party, or Value Added Network (VAN). Through the use of a VAN, test activities could complete the transfer of all EDI data in one communication session. The VAN also provided such EDI services as message distribution, electronic mailboxing, and other capabilities. This approach is widely used in the private sector.

McDonnell Douglas Corporation (MDC), under contract with LMI, provided the VAN services during the test. The MDC telecommunications network, TYMNET, is a multinode packet-switching network, similar to the Defense Data Network.

OPERATIONAL APPROACH

In developing test operational procedures at each activity, we considered the activities' current operations and the test technical configuration. Those procedures are summarized in this section.

DoD Shippers

The primary task of each test shipping activity was to transmit GBL information electronically to the payment centers, consignees, management reviewer (MTMC-EA), and motor carriers. Most of the shipping activities in the test had automated GBL generating systems. Technical interfaces between those systems and the EDI system provided the GBL information for the electronic exchange. To accomplish this electronic exchange, each shipping activity was responsible for daily operation of the EDI test system.

Most of the daily EDI operations were conducted on a microcomputer using the TELINK software. The procedures for operating the test system were included in the TELINK documentation and in the Operating Procedure documents developed for each activity. The TELINK package is entirely menu-driven. (The menu commands, and the functions they perform for key EDI operations, are described in more detail in Appendix E.)

To assess the accuracy and performance of the EDI system, each shipper established parallel controls of the paper and electronic environments. Those controls included:

- Assuring the accuracy of the electronic transactions prior to transmission by using a customized microcomputer correction screen input, or an existing application system correction procedure
- Annotating "EDI Test" on paper copies of test GBLs for subsequent user control
- Mailing the memo copy of the test GBLs to MTMC-EA under separate cover.

Finance Centers

Operations at the three DoD payment centers are, for the most part, manual. These manual processes include date stamping, edit checking, proration of appropriation data, sorting and blocking, data input, and microfiching. In fact, the only automated processes at the payment centers are freight payment (which provides some editing and control capability and a printed check) and compiling the FINS data files. The payment centers, which were key to a successful demonstration of EDI applications for the freight payment function, participated in the test as follows:

- *Data Receipt.* They received shipment information from shipping activities and invoice information from motor carriers in TDCC standard formats.
- *Reconciliation.* They used a customized microcomputer program that was added to the TELINK system to compare key pieces of information from the shipment information and invoice transaction sets. A printed report of variances above established thresholds was provided by EDI, Inc. (Additional detail on these customized programs is provided in Appendix E, Table E-1.)
- *Data Capture.* They combined information from the shipment information and invoice transaction sets to satisfy MTMC's requirements for shipment history information and to accommodate payment applications.
- *Transmission.* They transmitted the payment records to GSA and MTMC-EA using the file transfer transaction set.

Each of these payment center roles was automated through customized microcomputer routines provided by EDI, Inc.

Motor Carriers

Most motor carriers that conduct business with the Government have a central office in which the GBLs are processed. That office is staffed by one to three full-time clerks. Original GBLs are sent to that processing point by local terminals or drivers when the freight is delivered. The GBLs are then sorted by payment center and attached to a public voucher for mailing to the appropriate payment center. As many as 25 GBLs may be attached to each public voucher. The voucher contains the carrier's total charges for each of the attached GBLs and is essentially an invoice for transportation services.

The motor carriers played two major roles in the test: they transmitted invoices to DoD payment centers and they received shipment information from DoD shippers. The transmission of the Invoice standard was critical in testing EDI concepts for the freight payment application, while the receipt of the Shipment Information standard provided valuable feedback on potential application to carrier systems.

The DoD EDI test imposed some additional effort on the part of each carrier, however. Local terminals were required to capture test GBLs before they were loaded into the carrier system. They also were required to assign unique customer codes to test shipments to differentiate them from nontest shipments, and to submit paper copies of original test GBLs under a separate public voucher marked "EDI Test" to the finance center.

Consignees

The principle role of consignees in the DoD EDI test was to receive electronic shipment information from the shippers. Most of the test consignees have little automation for processing inbound GBLs. For instance, at Naval Supply Center (NSC) Charleston, advance copies of the GBL are maintained in a suspense file pending receipt of the shipment. When the shipment arrives, the GBLs are pulled, matched, and placed in a completed shipment file. If exceptions are found, the matched records are used for discrepancy reporting. The suspense file is manually purged twice each month, and discrepancy reports are prepared for all shipments more than 30 days old. This process is further complicated when the freight arrives

before the advance copy of the GBL, which usually occurs when the shipping activity is located only a short distance from NSC Charleston.

For the test, EDI, Inc., developed software for use by the consignees in capturing inbound shipment information and improving receiving operations. The software provided automated "suspense" capability and automated discrepancy report monitoring. (Table E-1 in Appendix E provides additional detail on those programs.)

Management Reviewer

The Management Review Office of MTMC-EA monitors DoD shipper's use and preparation of GBLs, a function that is performed manually. The Management Review Office's staff consists of two to four clerks and a manager. Shipping locations are required to send copies of each GBL to MTMC-EA where they are reviewed on a sample basis for select shippers according to a prescribed schedule. For this sample review, all GBLs must be sorted by shipper. The Management Review Office was selected to participate in the test to determine whether EDI could enhance this operation.

As a receiver of electronic shipment information and GBLs from test shippers, and payment records from the payment centers, MTMC-EA played two important roles in the DoD EDI test. It reconciled electronic and hard-copy shipment information and it examined completed payment records (file transfer standard) for data content.

In receiving shipment information, MTMC-EA compared the shipment information record that it received daily from the TELINK system with the corresponding memo copy of the GBL in order to assess the accuracy of the electronic transmission.

MTMC-EA's examination of payment records was aimed at assessing their auditability, their compliance with shipment reporting requirements, and other potential applications.

Postpayment Auditor

GSA is responsible for the postpayment audit of DoD GBLs. However, since GSA contracts that auditing to commercial firms, it has not invested in automation for auditing DoD freight GBLs.

The primary function of GSA during the DoD EDI test, like that of MTMC-EA, was to examine completed payment records received from the payment centers in the file transfer format. GSA's review was aimed at determining whether those records provided the information necessary to conduct a postpayment audit.

GSA's test procedure was similar to that of MTMC-EA. Each record was printed as part of the daily operation of the TELINK system and then reviewed by GSA personnel.

APPENDIX B

EDI STANDARDS

Electronic Data Interchange (EDI) applications use standards, or transaction sets, to transmit common business information between incompatible hardware and software systems. This appendix describes the basic structure of those transaction sets, the organizations that maintain them, and the issues encountered in developing the sets used in the DoD EDI test.

EDI STANDARDS DEVELOPMENT

Standards define the format and data requirements for specific business transactions, such as the Government Bill of Lading (GBL). They consist of a series of data segments that correspond to groups of related information in a document. Those data segments, in turn, comprise a series of data elements, which constitute the smallest unit of information in the EDI framework. A dictionary of data elements is used in constructing EDI data segments and transaction sets.

The standards use a variable length information format. Through the use of data delimiters, or separators, variable records eliminate the need for leading and trailing characters, common in fixed-field record flow. This feature, along with the use of mandatory, conditional, and optional data element and data segment designators, eliminates the transmission of unnecessary data and thus minimizes communications costs.

EDI applications use standard headers and trailers to address and control transmissions. These headers and trailers occur at the transaction set, functional group of transaction sets, and communications session levels.

Two organizations publish and maintain EDI standards in the United States: the American National Standards Institute (ANSI) and the Transportation Data Coordinating Committee (TDCC). ANSI chartered a committee, commonly known as X-12, in 1979 to develop generic standards for electronic exchange of business transactions, principally in the purchase, remittance, and banking functions. Today, X-12 develops and maintains standards for the automotive, chemical, and electrical

industries, as well as several others. ANSI has recently begun development of a generic transportation shipment information standard, but it will not be widely used before late 1988.

TDCC, a nonprofit organization, has developed 20 or more standards for all modes of transportation in such functional areas as shipment information, invoicing, and tracing. These standards, although developed in the early 1970's, have only recently been implemented in private-sector transportation applications. U.S. grocery and warehouse industries also use standards developed and maintained by TDCC.

STANDARDS USED IN THE DoD EDI TEST

Five TDCC motor carrier standards were used in the GBL test - Shipment Information, Freight Details and Invoice, Functional Group Totals, File Transfer, and Functional Acknowledgments. The following describes those five standards and three others currently used in commercial motor applications:

#204 – Shipment Information. In the EDI test, this standard was modified to fit the information contained in the GBL. It includes much of the pertinent information related to a shipment.

#210 – Freight Details and Invoice. This standard contains the essential invoicing information for payment of the freight bill.

#211 – Freight Details and Invoice Summary. This standard is sent from the carrier to the appropriate finance center in lieu of, or in combination with, the Freight Details and Invoice standard. (This standard was not used in the test.)

#213 – Inquiry. This standard is used by a shipper or other party to request specific information from a carrier on the status or location of a shipment. (This standard was not used in the test.)

#214 – Shipment Status Message. This standard provides shippers, consignees, or other parties with shipment status information from carriers transporting those shipments. (This standard was not used in the test.)

#996 – File Transfer. This standard is used to transmit file information. In the EDI test, two standards, the shipment information standard and freight details and invoice standard, were combined into one record set at the finance center for transmission to the General Services Administration (GSA).

#980 – Functional Group Totals. This standard provides selected summary information for each invoice standard in a functional group.

#997 – Functional Acknowledgment. This standard is sent in reply to all transmissions except the functional acknowledgment standard itself, which requires no reply. It provides a positive indication that all standards

transmitted were received and, if errors exist, identifies the data element and reason for the error.

Seven annexes to this appendix present the EDI control segments, standards, and data element dictionary used in the DoD EDI test.

STANDARDS MODIFICATION FOR THE DoD EDI TEST

A vital task in the implementation of any EDI application is the review and modification of existing standards or the development of new standards. In the DoD EDI test, we used existing standards although the Shipping Information standard needed to be modified to accommodate all the information on the GBL.

Standards Enhancements

From the detailed data requirements for the GBL contained in the Defense Traffic Management Regulation (DTMR), we developed several enhancements to the Shipment Information standard in conjunction with the American Trucking Association (ATA)/National Industrial Transportation League (NITL) joint user committee for motor carrier applications. The resulting draft standard was then used in the test.

Specifically, we added two data segments, the Y7 Priority segment and N5 Car Ordered segment, and several data qualifiers to the Shipment Information standard. The data qualifiers were added so that unique DoD codes could be used. These data segments and qualifiers and their purposes are shown in Annex 2 and in Appendix C (Figure C-1). None of the enhancements to the standard has been submitted to the TDCC Standards Maintenance Committee (SMC) for formal inclusion in the standard.

Conventions Document

Following enhancement of the draft Shipment Information standard, we drafted a conventions document that specified the location of each piece of GBL data in the standard. A conventions document provides uniform and consistent applications of data in the standard so that a users' automated data processing systems can interpret the electronic information. The draft conventions document prepared for the test is described in Appendix C.

TDCC STANDARDS MAINTENANCE PROCESS

The SMC of TDCC issues formal changes to standards every 6 months. The first step in that process is for a user to submit a Standards Maintenance Action Request (SMAR). The SMAR describes the proposed change and functional requirements on which it is based. The SMC then solicits the concurrence of the various mode subcommittees (such as ATA/NITL for motor carriers). Since the standards are designed to be flexible, the SMC must take one of three actions on each SMAR: adopt it as requested, offer an alternative solution, or request that it be withdrawn. Formal updates to the standard occur every February and August.

As noted previously, the segments and qualifiers added to the Shipment Information standard for purposes of the test have not been submitted for a formal standards change. These changes should not be submitted until DoD's shipment information data requirements are further refined. For the test, all of DoD's data requirements for motor carriers were included in the Shipment Information standard principally to demonstrate the standard's ability to accommodate the entire GBL. However, telecommunications costs and other technical and operational issues will likely limit the amount of data that will be exchanged in a live EDI environment. (These issues are presented in more detail in Appendices D and E.) In addition, few motor carriers have invested in the capability to receive that standard for a variety of operational reasons. Since the standard is used primarily by the DoD, it may not need to be changed.

SUMMARY

The commercial standards used in the test readily accommodated the DoD EDI test requirements. However, those standards are subject to change. To develop, refine, and maintain those standards, DoD will need to provide the resources for participation in standards subcommittees, maintenance of data requirement procedures (such as the DTMR), and maintenance of conventions documentation.

ANNEX 1

EDI CONTROL SEGMENTS

1 CONTROL SEGMENTS

BG TRANSMISSION CONTROL HEADER

PURPOSE: TO PROVIDE IDENTIFICATION OF THE TRANSMISSION SOURCE TO THE RECIPIENT AND TO PROVIDE INFORMATION REQUIRED FOR SECURITY PURPOSES

		BG01 402		BG02 403		BG03 142		BG04 124	
BG	*	COMM ID	*	COMM PASSWORD	*	APPLICATION SENDER'S CD	*	APPLICATION RECEVR'S CD	*
		M AN 01/10		M AN 01/10		M ID 02/12		M ID 02/12	

BG05 29		BG06 30		BG07 404	
DATA INTCHG DATE	*	DATA INTCHG TIME	*	TRANS CTL NO.	N L
M DT 06/06		M TM 04/04		M NO 01/05	

69 CHARACTERS MAXIMUM LENGTH

DATA ELEMENTS 124 AND 142 ARE BOTH PHONE NUMBERS. THE SENDER'S NUMBER INCLUDES THE AREA CODE BUT NOT THE ACCESS CODE; THE RECEIVER'S NUMBER IS THE TELEPHONE NUMBER AS DIALED FROM THE SENDER'S TRANSMITTING LOCATION (WHICH INCLUDES THE ACCESS CODE IF REQUIRED). THE TELEPHONE NUMBERS ARE THOSE OF THE MODEMS.

WHEN A TRANSMISSION CONTAINS MORE THAN ONE BG/EG SEGMENT COMBINATION, THE TRANSMISSION REQUIREMENT FOR THE SENDER IS THAT EACH BG SEGMENT MAY, AT THE SENDER'S OPTION, START AT THE BEGINNING OF A TRANSMISSION BLOCK. THE REQUIREMENT FOR THE RECEIVER IS TO VERIFY THAT A TRANSMISSION BLOCK BEGINNING WITH "BG*" IS IN FACT A BG SEGMENT. ("BG*" ALONE DOES NOT ALWAYS INDICATE THE BEGINNING OF A BG SEGMENT.)

EG TRANSMISSION CONTROL TRAILER

PURPOSE: TO DELINEATE A TRANSMISSION AND TO TRANSMIT INFORMATION REQUIRED FOR CONTROL

		EG01 404		EG02 405		EG03 97		EG04 96	
EG	*	TRANS CTL NO.	*	NO. OF INCL FCT GROUPS	*	NUMBER OF INCL. SETS	*	NUMBER OF INCL. SEG.	N L
		M NO 01/05		M NO 01/05		M NO 01/06		M NO 01/06	

29 CHARACTERS MAXIMUM LENGTH

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

GS FUNCTIONAL GROUP HEADER

PURPOSE: TO INDICATE THE BEGINNING OF A FUNCTIONAL GROUP AND TO PROVIDE CONTROL INFORMATION

FOR UCS, DATA ELEMENTS 124 AND 142 ARE BOTH PHONE NUMBERS WHICH INCLUDE THE AREA CODE BUT NOT THE ACCESS CODE. THE TELEPHONE NUMBERS ARE THOSE OF MODEMS.

FOR TRANSACTION SET 999, DATA ELEMENT 142 MUST BE THE TELEPHONE NUMBER FROM THE GS SEGMENT CONTAINED IN THE ORIGINAL FUNCTIONAL GROUP CAUSING GENERATION OF THE ACCEPTANCE/ REJECTION ADVICE SET.

THE UCS FUNCTIONAL IDENTIFIERS (DATA ELEMENT 479) ARE:

Transaction Sets	Functional ID
999	AG
994	CG
880 881 890	IG
888 889	QG
884 885	SG
875 876 877	OG
905	PG

		GS01 479		GS02 142		GS03 124		GS04 29	
GS	*	FUNCTIONAL ID M ID 02/02	*	APPLICATION SENDER'S CD M ID 02/12	*	APPLICATION RECEVR'S CD M ID 02/12	*	DATA INTCHG DATE M DT 06/06	*

GS05 30		GS06 28		GS07 455		GS08 480	
DATA INTCHG TIME M TM 04/04	*	DATA INTCHG CONTROL NO. M NO 01/09	*	RESPONSIBLE AGENCY CODE M ID 01/02	*	VERSION M ID 01/12	N L

70 CHARACTERS MAXIMUM LENGTH

GE FUNCTIONAL GROUP TRAILER

PURPOSE: TO INDICATE THE END OF A FUNCTIONAL GROUP AND TO PROVIDE CONTROL INFORMATION

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

		GE01 97		GE02 28	
GE	*	NUMBER OF INCL. SETS M NO 01/06	*	DATA INTCHG CONTROL NO. M NO 01/09	N L

20 CHARACTERS MAXIMUM LENGTH

ST TRANSACTION SET HEADER

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

"401" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

		ST01 143		ST02 329	
ST	*	TRANSACTION SET ID A01 M ID 03/03	*	TRANS. SET CONTROL NO. A02 M AN 04/09	N L

17 CHARACTERS MAXIMUM LENGTH

LS LOOP HEADER

PURPOSE: TO INDICATE THAT THE NEXT SEGMENT BEGINS A LOOP

		LS01 447	
LS	*	LOOP IDENTIFIER A98	N L
		M ID 01/04	

8 CHARACTERS MAXIMUM LENGTH

"A98" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO DETERMINE THE VALUE FOR LS01.

LE LOOP TRAILER

PURPOSE: TO INDICATE THAT THE LOOP IMMEDIATELY PRECEDING THIS SEGMENT IS COMPLETE

		LE01 447	
LE	*	LOOP IDENTIFIER A99	N L
		M ID 01/04	

8 CHARACTERS MAXIMUM LENGTH

"A99" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO DETERMINE THE VALUE FOR LE01.

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

		SE01 96		SE02 329	
SE	*	NUMBER OF INCL. SEG. A16	*	TRANS. SET CONTROL NO. A17	N L
		M NO 01/06		M AN 04/09	

20 CHARACTERS MAXIMUM LENGTH

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

ANNEX 2

#204 – SHIPMENT INFORMATION STANDARD

204 SHIPMENT INFORMATION (MOTOR) M2/2

ABSTRACT: THIS TRANSACTION SET IS USED BY A SHIPPER TO PROVIDE A CARRIER, CONSIGNEE OR THIRD PARTY WITH INFORMATION DETAILS RELATIVE TO A SHIPMENT.

		REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST	TRANSACTION SET HEADER	M	1		
B2	BEGINNING SEGMENT FOR SHIPMENT INFORMATION TRANS	M	1		
Y6	AUTHENTICATION	O	1		
Y7	PRIORITY	O	1		
C2	BANK ID	O	1		
C3	CURRENCY	O	1		
N9	REFERENCE NUMBER	O	10		
N1	NAME	O	1	2041	1
N2	ADDITIONAL NAME INFORMATION	O	1	2041	
N3	ADDRESS INFORMATION	O	2	2041	
N4	GEOGRAPHIC LOCATION	O	1	2041	
N5	CAR ORDERED	O	1	2042	1
N7	EQUIPMENT DETAILS	O	1	2042	1
M7	SEAL NUMBERS	O	2	2042	
S8	STOP-OFF	O	1	2043	5
S2	STOP-OFF ADDRESS	O	1	2043	
S9	STOP-OFF STATION	O	1	2043	
G62	DATE/TIME	O	5	2043	
R2	ROUTE INFORMATION	O	12		
H3	SPECIAL HANDLING INSTRUCTIONS	O	5		
N9	REFERENCE NUMBER	O	10	2044	6
H1	HAZARDOUS MATERIAL	O	1	2044	
H2	ADDITIONAL HAZARDOUS MATERIAL DESCRIPTION	O	1	2044	
L5	DESCRIPTION, MARKS AND NUMBERS	O	10	2044	
LO	LINE ITEM - QUANTITY AND WEIGHT	O	10	2044	
L1	RATE AND CHARGES	O	10	2044	
L4	MEASUREMENT	O	10	2044	
L7	TARIFF REFERENCE	O	10	2044	
L3	TOTAL WEIGHT AND CHARGES	O	1		
K1	REMARKS	O	10		
SE	TRANSACTION SET TRAILER	M	1		

REQUIRE-MENT | MAX USE | LOOP ID | LOOP INDEX

ST TRANSACTION SET HEADER

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

M 1 0 0

"A01" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

	ST01 143		ST02 329	
ST	TRANSACTION SET ID A01 M ID 03/03	*	TRANS. SET CONTROL NO. A02 M AN 04/09	N/L

17 CHARACTERS MAXIMUM LENGTH

B2 BEGINNING SEGMENT FOR SHIPMENT INFORMATION TRANSACTION

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS, DATES AND OTHER BASIC DATA RELATING TO THE TRANSACTION SET

IF B207 IS BLANK ALL WEIGHT VALUES ARE INTERPRETED AS POUNDS.

M 1 0 0

DUE TO THE INSTALLATION OF THE "ST" SEGMENT IN ALL TRANSACTION SETS, DATA ELEMENT 143 IN ALL OF THE "B" SEGMENTS IS REDUNDANT. DE143 WILL BE RETAINED AS AN OPTIONAL DATA ELEMENT FOR A PERIOD OF ADJUSTMENT. IT IS SUGGESTED THAT DE143 NOT BE TRANSMITTED SO IT MAY BE DROPPED FROM SEGMENT DEFINITIONS IN THE FUTURE.

	B201 143		B202 298		B203 154		B204 223	
B2	TRANSACTION SET ID O ID 03/03	*	ORIGIN EDI CARR. M ID 02/04	*	SPLC O ID 06/09	*	REPETITIVE PATTERN NO. E0405 O NO 05/05	*

	B205 129		B206 145		B207 188		B208 146	
	REFERENCED PATTERN ID E0405 O AN 01/13	*	SHIPMENT ID NO. (SID) O AN 01/12	*	WEIGHT UNIT QUALIFIER C ID 01/01	*	SHIPMENT METH OF PAY M ID 02/02	*

	B209 160		B210 147		B211 11		B212 226	
	STATUS RPT REQUEST CDE O ID 01/01	*	SHIPMENT QUALIFIER C ID 01/01	*	BILLING CODE O ID 01/01	*	SECTION SEVEN CODE O ID 01/01	*

	B213 195		B214 199		B215 57		B216 86	
	CAPACITY LOAD CODE O ID 01/01	*	CONFIDENT'L BILLING REQ O ID 01/01	*	FRGHT BILL DISPOSITION O ID 01/01	*	TOTAL EQUIPMENT C NO 01/03	*

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

B217 460		B218 501	
SHIPMENT WT CODE RAILM	*	CUSTOMS DOC HAND CODE	N L
O ID 01/01		C ID 02/02	

83 CHARACTERS MAXIMUM LENGTH

Y6 AUTHENTICATION

PURPOSE: TO SPECIFY THE AUTHORITY FOR AUTHORIZING AN ACTION AND THE DATE AUTHENTICATION IS MADE

O	4	O

	Y601 313		Y602 151		Y603 275	
Y6	AUTHORITY IDENTIFIER	*	AUTHORITY	*	AUTHORIZ. DATE	N L
	O ID 02/02		M AN 01/20		M DT 06/06	

34 CHARACTERS MAXIMUM LENGTH

Y7 PRIORITY

PURPOSE: TO ASSIGN A PRIORITY TO A BOOKING WHICH WOULD INCREASE THE POSSIBLILITY THAT THIS CARGO WOULD BE BOOKED ON SAID VOYAGE AND NOT BE SHUT OUT

O	1

	Y701 467		Y702 470		Y703 471		Y704 468	
Y7	PRIORITY	*	PRIORITY CODE	*	PRIORITY CODE QUAL	*	PORT CALL FILE NO.	*
	C NO 01/01		C NO 01/01		C AN 01/01		C NO 04/04	

Y705 469	
REQUIRED DEL DATE	N L
C DT 06/06	

21 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1		0

C2 BANK ID

PURPOSE: TO SPECIFY DATA REQUIRED FOR ELECTRONIC PAYMENT

	C201 8	C202 66	C203 67	C204 20
C2	BANK CLIENT CODE M ID 01/01	ID CODE QUALIFIER M ID 01/02	ID CODE M ID 02/17	CLIENT BANK NUMBER O NO 03/09

C205 7	C206 107	C207 38	NL
BANK ACC. NUMBER O NO 06/17	PAYMENT METHOD O ID 01/01	EFFECTIVE PAYMENT DTE O DT 06/06	

63 CHARACTERS MAXIMUM LENGTH

C3 CURRENCY

PURPOSE: TO SPECIFY THE CURRENCY BEING USED IN THE TRANSACTION SET

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	0	0

CURRENCY IS IMPLIED BY THE CODE FOR THE COUNTRY IN WHOSE CURRENCY THE MONETARY AMOUNTS ARE SPECIFIED.

C301 = BILLING CURRENCY
C303 = PAYMENT CURRENCY

	C301 100	C302 280	C303 100	NL
C3	CURRENCY CODE M ID 03/03	EXCHANGE RATE C R 04/06	CURRENCY CODE C ID 03/03	

18 CHARACTERS MAXIMUM LENGTH

N9 REFERENCE NUMBER

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS AND DESCRIPTIVE INFORMATION AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	10	0	0

NOTE: THE RELATIONSHIP BETWEEN THE SECOND AND THIRD DATA ELEMENTS IS "REQUIRED" INDICATING THAT AT LEAST ONE OF THESE DATA ELEMENTS MUST BE USED WHEN THIS SEGMENT IS USED.

	N901 128	N902 127	N903 369	N904 373
N9	REFERENCE NO. QUAL. M ID 02/02	REFERENCE NUMBER R0203 C AN 01/30	FREE-FORM DESCR. R0203 C AN 01/45	DATE O DT 06/06

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

	N905 337	
	TIME	N L
	O TM 04/04	

95 CHARACTERS MAXIMUM LENGTH

N1 NAME

PURPOSE: TO IDENTIFY A PARTY BY TYPE OF ORGANIZATION, NAME AND CODE

C 1 2041 10

		N101 98		N102 93		N103 66		N104 67	
N1	*	ORGANIZAT'N IDENTIFIER	*	NAME R0203	*	ID CODE QUALIFIER P0304	*	ID CODE P0304	N L
		M ID 02/02		C AN 01/35		C ID 01/02		C ID 02/17	

53 CHARACTERS MAXIMUM LENGTH

N2 ADDITIONAL NAME INFORMATION

PURPOSE: TO SPECIFY ADDITIONAL NAMES OR THOSE LONGER THAN 35 CHARACTERS IN LENGTH

C 1 2041 0

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE NAME.

		N201 93		N202 93	
N2	*	NAME	*	NAME	N L
		M AN 01/35		O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

N3 ADDRESS INFORMATION

PURPOSE: TO SPECIFY THE LOCATION OF THE NAMED PARTY

C 2 2041 1

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

		N301 166		N302 166	
N3	*	ADDRESS	*	ADDRESS	N L
		M AN 01/35		O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	2041	0

N4 GEOGRAPHIC LOCATION

PURPOSE: TO SPECIFY THE GEOGRAPHIC PLACE OF THE NAMED PARTY

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

	N401 19		N402 156		N403 116		N404 26	
N4	CITY NAME R0105 C AN 02/19	*	STATE/PROV. CODE C0102 C ID 02/02	*	POSTAL CODE O ID 05/09	*	COUNTRY CODE O ID 02/02	*

	N405 309		N406 310	
	LOCATION QUALIFIER P0506 C ID 01/02	*	LOCATION IDENT P0506 C AN 01/25	NL

68 CHARACTERS MAXIMUM LENGTH

N5 CAR ORDERED

PURPOSE: TO SPECIFY THE REQUIRED RAIL CAR

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	2042	10

	N501 567		N502 233		N503 203		N504 196	
N5	EQUIPMENT LENGTH O NO 04/05	*	WEIGHT CAPACITY O NO 02/03	*	CUBIC CAPACITY O NO 02/04	*	CAR TYPE O ID 02/04	*

	N505 216		N506 574		N507 584		N508 585	
	METRIC QUALIFIER O ID 01/01	*	WEIGHT ORDERED O NO 04/04	*	OVERLENGTH QUALIFIER C ID 01/01	*	PRIOR LOAD QUALIFIER C ID 01/01	*

	N509 643		N510 644		N511 74		N512 122	
	LADING PERCENTAGE P0910 C N2 02/04	*	LADING PCT. QUALIFIER P0910 C ID 01/01	*	DECLARED VALUE P1112 C N2 02/10	*	RATE/VALUE QUALIFIER P1112 C ID 02/02	NL

55 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

N7 EQUIPMENT DETAILS

PURPOSE: TO SPECIFY THE EQUIPMENT DETAILS IN TERMS OF IDENTIFYING NUMBERS, OWNERSHIP, WEIGHTS AND VOLUMES

C 1 2042 10

"RAILM" IN N701 INDICATES THAT THE DATA ELEMENT IS MANDATORY FOR RAIL TRANSACTIONS.

	N701 206	N702 207	N703 81	N704 187
N7	EQUIPMENT INITIAL RAILM C AN 01/04	EQUIPMENT NUMBER M AN 01/07	WEIGHT C0304 C R 01/08	WEIGHT QUALIFIER C ID 01/02

N705 167	N706 232	N707 205	N708 183
TARE WEIGHT P0516 C NO 03/08	WEIGHT ALLOWANCE C NO 02/06	DUNNAGE C NO 01/06	VOLUME P0809 O R 01/08

N709 184	N710 102	N711 40	N712 307
VOLUME UNIT QUALIFIER P0809 C ID 01/01	OWNERSHIP CODE O ID 01/01	EQUIPMENT DESC CODE C ID 02/02	EQUIPMENT OWNER C ID 01/04

N713 319	N714 219	N715 567	N716 571
TEMPERATURE CONTROL O AN 03/06	POSITION O AN 01/03	EQUIPMENT LENGTH O NO 04/05	TARE QUALIFIER P0516 C ID 01/01

N717 188	N718 761	N719 56	
WEIGHT UNIT QUALIFIER C ID 01/01	INTMDL EQUP NO CHK DIG O NO 01/01	TYPE OF SVC CODE O ID 02/02	NL

98 CHARACTERS MAXIMUM LENGTH

204 SHIPMENT INFORMATION (MOTOR) M2/2

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	2	2042	0

M7 SEAL NUMBERS

PURPOSE: TO RECORD SEAL NUMBERS USED

	M701 225	M702 225	M703 225	M704 225	
M7	SEAL NUMBER	SEAL NUMBER	SEAL NUMBER	SEAL NUMBER	NL
	M AN 02/15	C AN 02/15	C AN 02/15	C AN 02/15	

67 CHARACTERS MAXIMUM LENGTH

S8 STOP-OFF

PURPOSE: TO SPECIFY REASON, WEIGHT, AND QUANTITY DETAILS FOR A STOP-OFF

(THE SEQUENCE OF SEGMENTS S8 AND S9 MAY BE REPEATED UP TO 50 TIMES)

	C	1	2043	50

	S801 165	S802 163	S803 162	S804 187	
S8	STOP SEQ. NUMBER	STOP REASON CODE	STOP-OFF WEIGHT	WEIGHT QUALIFIER	
	M NO 01/02	M ID 02/02	M NO 03/08	M ID 01/02	

	S805 80	S806 103	S807 164	S808 93	
	LADING QUANTITY	PACKAGING CODE	STOP REASON DESCRIPTION	NAME	
	C NO 01/07	O ID 05/05	C AN 02/20	O AN 01/35	

	S809 66	S810 67	
	ID CODE QUALIFIER	ID CODE P0910	NL
	O ID 01/02	C ID 02/17	

113 CHARACTERS MAXIMUM LENGTH

204 SHIPMENT INFORMATION (MOTOR) M2/2

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	2043	

S2 STOP-OFF ADDRESS

PURPOSE: TO SPECIFY THE ADDRESS OF THE STOP-OFF PARTY

	S201 165	S202 297	S203 297	
S2	STOP SEQ. NUMBER	ADD'L NAME/ ADDR DATA	ADD'L NAME/ ADDR DATA	NL
	M NO 01/02	M AN 01/30	O AN 01/30	

58 CHARACTERS MAXIMUM LENGTH

S9 STOP-OFF STATION

PURPOSE: TO SPECIFY LOCATION DETAILS FOR A STOP-OFF

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	2043	

	S901 165	S902 154	S903 19	S904 156	
S9	STOP SEQ. NUMBER	SPLC	CITY NAME	STATE/PROV. CODE	
	M NO 01/02	O ID 06/09	M AN 02/19	M ID 02/02	

S905 26	S906 163	S907 309	S908 310	
COUNTRY CODE	STOP REASON CODE	LOCATION QUALIFIER	LOCATION IDENT *P0708*	NL
O ID 02/02	M ID 02/02	O ID 01/02	C AN 01/25	

74 CHARACTERS MAXIMUM LENGTH

G62 DATE/TIME

PURPOSE: TO SPECIFY PERTINENT DATES AND TIMES

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	5	2043	

	G6201 432	G6202 373	G6203 176	G6204 337	
G62	DATE QUALIFIER *R0103*	DATE *P0102*	TIME QUALIFIER *R0103*	TIME *P0304*	NL
	C ID 02/02	C DT 06/06	C ID 01/01	C TM 04/04	

21 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	12	0	0

R2 ROUTE INFORMATION

PURPOSE: TO SPECIFY CARRIER AND ROUTING SEQUENCES AND DETAILS

R2	R201 140 SCAC M ID 02/04	*	R202 133 ROUTING SEQ. CODE M ID 01/02	*	R203 77 INTLN STAT. CITY NAME C AN 02/19	*	R204 154 SPLC C ID 06/09	*

	R205 177 TOFC PLAN CODE C ID 01/02	*	R206 91 MODE O ID 01/02	*	R207 296 INTER SWITCH O ID 02/04	*	R208 296 INTER SWITCH O ID 02/04	*

	R209 76 INVOICE NUMBER C AN 01/22	*	R210 12 BILLING DATE C DT 06/06	*	R211 369 FREE-FORM DESCR. O AN 01/45	*	R212 56 TYPE OF SVC CODE O ID 02/02	*

	R213 742 ROUTE DESCRIPTION O AN 01/35	N L

172 CHARACTERS MAXIMUM LENGTH

H3 SPECIAL HANDLING INSTRUCTIONS

PURPOSE: TO SPECIFY SPECIAL HANDLING INSTRUCTIONS IN CODED OR FREE-FORM

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	5	0	0

H3	H301 152 SPECIAL HANDLING CD E0102 C ID 02/03	*	H302 153 SPECIAL HAND. DESCR E0102 C AN 02/30	*	H303 241 PROTECTIVE SERVICE C ID 01/08	*	H304 242 VENT INSTRUCT. C ID 01/07	*

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

H305 257	
TARIFF APPL. CODE	N L
C ID 01/01	

57 CHARACTERS MAXIMUM LENGTH

N9 REFERENCE NUMBER

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS AND DESCRIPTIVE INFORMATION AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER

C 10 2044 999

NOTE: THE RELATIONSHIP BETWEEN THE SECOND AND THIRD DATA ELEMENTS IS "REQUIRED" INDICATING THAT AT LEAST ONE OF THESE DATA ELEMENTS MUST BE USED WHEN THIS SEGMENT IS USED.

	N901 128	N902 127	N903 369	N904 373
N9	REFERENCE NO. QUAL.	REFERENCE NUMBER R0203	FREE-FORM DESCR. R0203	DATE
	M ID 02/02	C AN 01/30	C AN 01/45	O DT 06/06

N905 337	
TIME	N L
O TM 04/04	

95 CHARACTERS MAXIMUM LENGTH

H1 HAZARDOUS MATERIAL

PURPOSE: TO SPECIFY INFORMATION RELATIVE TO HAZARDOUS MATERIAL

C 1 2044 0

THIS SEGMENT IS REQUIRED WHEN THE SHIPMENT CONTAINS HAZARDOUS MATERIAL.

	H101 62	H102 209	H103 208	H104 64
H1	HAZARDOUS MAT'L CODE	HAZ. MAT'L CLASS	HAZ. MAT'L CODE QUAL.	HAZ. MAT'L DESCRIPTION
	M ID 04/10	O ID 02/04	O ID 01/01	O AN 02/30

H105 63	
HAZ. MAT'L CONTACT	N L
O AN 01/24	

77 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

H2 ADDITIONAL HAZARDOUS MATERIAL DESCRIPTION

PURPOSE: TO SPECIFY FREE-FORM HAZARDOUS MATERIAL DESCRIPTIVE DATA IN ADDITION TO THE INFORMATION PROVIDED IN SEGMENT H1

C 2 2044

		H201 64		H202 274	
H2	*	HAZ. MAT'L DESCRIPTION	*	HAZ MATER'L CLASS	N L
		M AN 02/30		C AN 01/30	

65 CHARACTERS MAXIMUM LENGTH

L5 DESCRIPTION, MARKS AND NUMBERS

PURPOSE: TO SPECIFY THE LINE ITEM IN TERMS OF DESCRIPTION, QUANTITY, PACKAGING, AND MARKS AND NUMBERS

C 10 2044

NOTE: L503 AND L504 ARE "PAIRED" DATA ELEMENTS. IF ONE IS USED, BOTH MUST BE USED EXCEPT FOR RAIL TRANSACTION SETS WHERE STCC IS UNDERSTOOD.

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

		L501 213		L502 79		L503 22		L504 23	
L5	*	LADING LINE NUMBER	*	LADING DESCRIPTION	*	COMMODITY CODE *P0304*	*	COMMODITY CODE QUAL. *P0304*	*
		M NO 01/03		C AN 01/25		C ID 01/10		C ID 01/01	

		L505 103		L506 87		L507 88	
		PACKAGING CODE	*	MARKS AND NUMBERS	*	MARKS AND NOS. QUAL.	N L
		O ID 05/05		O AN 01/45		O ID 01/02	

101 CHARACTERS MAXIMUM LENGTH

L0 LINE ITEM - QUANTITY AND WEIGHT

PURPOSE: TO SPECIFY QUANTITY, WEIGHT AND VOLUME FOR A LINE ITEM INCLUDING APPLICABLE "QUANTITY/RATED-AS" DATA

C 10 2044

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

		L001 213		L002 220		L003 221		L004 81	
L0	*	LADING LINE NUMBER	*	BILLED/ RATE-AS-QTY P0203	*	QUAN BILLED /RATED-AS P0203	*	WEIGHT P0405	*
		M NO 01/03		C NO 01/11		C ID 02/02		C R 01/08	

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

L005 187	*	L006 183	*	L007 184	*	L008 80	*
WEIGHT QUALIFIER P0405		VOLUME P0607		VOLUME UNIT QUALIFIER P0607		LADING QUANTITY	
C ID 01/02		C R 01/08		C ID 01/01		C NO 01/07	

L009 211	*	L010 458	*	L011 188	N L
LADING QTY QUALIFIER		DUNNAGE DESCRIPTION		WEIGHT UNIT QUALIFIER	
C ID 03/03		C AN 02/25		C ID 01/01	
85 CHARACTERS MAXIMUM LENGTH					

L1 RATE AND CHARGES

PURPOSE: TO SPECIFY RATE AND CHARGES DETAIL RELATIVE TO A LINE ITEM INCLUDING FREIGHT CHARGES, ADVANCES, SPECIAL CHARGES, AND ENTITLEMENTS

C 10 2044

	L101 213	*	*L102 60*	*	*L103 122*	*	*L104 58*	*
L1	LADING LINE NUMBER		FREIGHT RATE		RATE/VALUE QUALIFIER		CHARGE R040506	
	M NO 01/03		C N4 04/09		C ID 02/02		C N2 01/09	

NOTE: DATA ELEMENTS L104, L105, AND L106 ARE "REQUIRED" ELEMENTS, INDICATING THAT AT LEAST ONE OF THE REFERENCED ELEMENTS MUST BE USED.

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

L105 191	*	L106 117	*	L107 120	*	L108 150	*
ADVANCES R040506		PREPAID AMOUNT R040506		RATE COMB. POINT		SPECIAL CHARGE CODE	
C N2 01/09		C N2 01/09		C ID 03/09		C ID 03/03	

L109 121	*	L110 39	*	L111 16	*	L112 276	*
RATE CLASS		ENTITLEMENT CODE		CHG METHOD OF PAYMENT		SPECIAL CHG DESCR	
C ID 01/03		C ID 01/01		C ID 01/01		C AN 02/25	

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

L113 257	
TARIFF APPL. CODE	N L
C ID 01/01	

100 CHARACTERS MAXIMUM LENGTH

L4 MEASUREMENT

PURPOSE: TO DESCRIBE PHYSICAL DIMENSIONS

C 10 2044 O

		L401 82		L402 189		L403 65		L404 90	
L4	*	LENGTH	*	WIDTH	*	HEIGHT	*	MEASUREMENT UNIT QUAL.	N L
		M R 01/06		M R 01/08		M R 01/06		M ID 01/01	

28 CHARACTERS MAXIMUM LENGTH

L7 TARIFF REFERENCE

PURPOSE: TO REFERENCE DETAILS OF THE TARIFF USED TO ARRIVE AT APPLICABLE RATES OR CHARGE

O 10 2044 O

		L701 213		L702 168		L703 171		L704 172	
L7	*	LADING LINE NUMBER	*	TARIFF AGENCY CODE	*	TARIFF NUMBER	*	TARIFF SECTION	*
		O NO 01/03		O ID 01/04		O AN 01/07		O NO 01/02	

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

"CITY" AND "STATE" IN L715 AND L716 ARE USED FOR RATE COMBINATION CITY AND STATE.

	L705 169		L706 170		L707 59		L708 173	
	TARIFF ITEM NUMBER	*	TARIFF ITEM PART	*	FREIGHT CLASS	*	TARIFF SUPPLEMENT	*
	O AN 01/10		O NO 01/02		O ID 02/05		O AN 01/04	

	L709 46		L710 37		L711 119		L712 227	
	EX PARTE	*	EFFECTIVE DATE	*	RATE BASIS NUMBER	*	TARIFF COLUMN	*
	O AN 04/04		O DT 06/06		O AN 02/06		O AN 01/02	

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

L713 294	*	L714 295	*	L715 19	*	L716 156	N L
TARIFF DISTANCE		DISTANCE QUALIFIER		CITY NAME		STATE/PROV. CODE	
O NO 01/05		O ID 01/01		O AN 02/19		O ID 02/02	

101 CHARACTERS MAXIMUM LENGTH

L3 TOTAL WEIGHT AND CHARGES

PURPOSE: TO SPECIFY THE TOTAL SHIPMENT IN TERMS OF WEIGHT, VOLUME, RATES, CHARGES, ADVANCES, AND PREPAID AMOUNTS APPLICABLE TO ONE OR MORE LINE ITEMS

C 1 0 0

NOTE: L305 IS THE TOTAL CHARGES.

NOTE: THERE ARE THREE GROUPS OF "PAIRED" DATA ELEMENTS - L301 AND L302, L303 AND L304, AND L309 AND L310. WHEN ONE MEMBER OF A PAIR IS USED, BOTH MUST BE USED.

	L301 81	*	L302 187	*	L303 60	*	L304 122	*
L3	WEIGHT P0102		WEIGHT QUALIFIER P0102		FREIGHT RATE P0304		RATE/VALUE QUALIFIER P0304	
	C R 01/08		C ID 01/02		O N4 04/09		O ID 02/02	

L305 58	*	L306 191	*	L307 117	*	L308 150	*
CHARGE		ADVANCES		PREPAID AMOUNT		SPECIAL CHARGE CODE	
C N2 01/09		C N2 01/09		C N2 01/09		C ID 03/03	

L309 183	*	L310 184	*	L311 80	*	L312 188	N L
VOLUME P0910		VOLUME UNIT QUALIFIER P0910		LADING QUANTITY		WEIGHT UNIT QUALIFIER	
C R 01/08		C ID 01/01		C N0 01/07		C ID 01/01	

93 CHARACTERS MAXIMUM LENGTH

K1 REMARKS

PURPOSE: TO TRANSMIT INFORMATION IN A FREE-FORM FORMAT, IF NECESSARY, FOR COMMENT OR SPECIAL INSTRUCTION

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	10	O	O

		K101 61		K102 61	
K1	*	GENERAL REMARKS M AN 01/30	*	GENERAL REMARKS O AN 01/30	N L

65 CHARACTERS MAXIMUM LENGTH

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	M	1	O	O

		SE01 96		SE02 329	
SE	*	NUMBER OF INCL. SEG. A16 M NO 01/06	*	TRANS. SET CONTROL NO. A17 M AN 04/09	N L

20 CHARACTERS MAXIMUM LENGTH

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

ANNEX 3

#210 – FREIGHT DETAILS AND INVOICE STANDARD

210 FREIGHT DETAILS AND INVOICE (MOTOR) M2/2

ABSTRACT: THIS TRANSACTION SET IS TRANSMITTED FROM A MOTOR CARRIER TO A SHIPPER, CONSIGNEE, OR THIRD PARTY TO RELATE THE DETAILS FOR TRANSPORTATION AND BILLING.

		REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST	TRANSACTION SET HEADER	M	1		
B3	BEGINNING SEGMENT FOR CARRIERS INVOICE	M	1		
C2	BANK ID	O	1		
C3	CURRENCY	O	1		
ITD	TERM OF SALE/DEFERRED TERMS OF SALE	O	1		
N9	REFERENCE NUMBER	O	10		
N1	NAME	O	1	2101	1
N2	ADDITIONAL NAME INFORMATION	O	1	2101	
N3	ADDRESS INFORMATION	O	1	2101	
N4	GEOGRAPHIC LOCATION	O	1	2101	
N9	REFERENCE NUMBER	O	5	2101	
K1	REMARKS	O	30		
P1	PICK-UP	O	1		
S8	STOP-OFF	O	1	2102	5
S9	STOP-OFF STATION	O	1	2102	
R2	ROUTE INFORMATION	O	4		
H3	SPECIAL HANDLING INSTRUCTIONS	O	6		
N6	SID REFERENCE NUMBERS	O	1	2103	999
N1	NAME	O	1	2104	
N2	ADDITIONAL NAME INFORMATION	O	1	2104	
N3	ADDRESS INFORMATION	O	1	2104	
N4	GEOGRAPHIC LOCATION	O	1	2104	
N1	NAME	O	1	2105	
N2	ADDITIONAL NAME INFORMATION	O	1	2105	
N3	ADDRESS INFORMATION	O	1	2105	
N4	GEOGRAPHIC LOCATION	O	1	2105	
N9	REFERENCE NUMBER	O	5	2105	
P1	PICK-UP	O	1	2106	
P2	DELIVERY	O	1	2106	
N7	EQUIPMENT DETAILS	O	1	2106	
L5	DESCRIPTION, MARKS AND NUMBERS	O	5	2106	
LO	LINE ITEM - QUANTITY AND WEIGHT	O	100	2107	
L1	RATE AND CHARGES	O	10	2107	
L4	MEASUREMENT	O	10	2107	
L6	CARRIERS LINE ITEM REFERENCE NUMBER	O	1	2107	
L7	TARIFF REFERENCE	O	10	2107	
L8	LINE ITEM SUBTOTAL	O	1	2107	
K1	REMARKS	O	30	2107	
L3	TOTAL WEIGHT AND CHARGES	M	1		
K1	REMARKS	O	30		
SE	TRANSACTION SET TRAILER	M	1		

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX
	M	1	O	O

ST TRANSACTION SET HEADER

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

"A01" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

		ST01 143		ST02 329	
ST	*	TRANSACTION SET ID A01 M ID 03/03	*	TRANS. SET CONTROL NO. A02 M AN 04/09	N L

17 CHARACTERS, MAXIMUM LENGTH

B3 BEGINNING SEGMENT FOR CARRIERS INVOICE

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS, DATES AND OTHER BASIC DATA RELATING TO THE TRANSACTION SET

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX
	M	1	O	O

DUE TO THE INSTALLATION OF THE "ST" SEGMENT IN ALL TRANSACTION SETS, DATA ELEMENT 143 IN ALL OF THE "B" SEGMENTS IS REDUNDANT. DE143 WILL BE RETAINED AS AN OPTIONAL DATA ELEMENT FOR A PERIOD OF ADJUSTMENT. IT IS SUGGESTED THAT DE143 NOT BE TRANSMITTED SO IT MAY BE DROPPED FROM SEGMENT DEFINITIONS IN THE FUTURE.

		B301 143		B302 76		B303 145		B304 146	
B3	*	TRANSACTION SET ID O ID 03/03	*	INVOICE NUMBER M AN 01/22	*	SHIPMENT ID NO. (SID) C AN 01/12	*	SHIPMENT METH OF PAY M ID 02/02	*

	B305 188		B306 12		B307 193		B308 202	
	WEIGHT UNIT QUALIFIER	*	BILLING DATE	*	NET AMOUNT DUE	*	CORRECTION INDICATOR	*
	O ID 01/01		M DT 06/06		M N2 01/09		C ID 02/02	

	B309 32		B310 33		B311 140		B312 373	
	DELIVERY DATE P0910	*	DELIVERY DATE QUAL. P0910	*	SCAC	*	DATE	N L
	O DT 06/06		C ID 01/01		M ID 02/04		C DT 06/06	

89 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	0	0

C2 BANK ID

PURPOSE: TO SPECIFY DATA REQUIRED FOR ELECTRONIC PAYMENT

	C201 8	C202 66	C203 67	C204 20
C2	BANK CLIENT CODE M ID 01/01	ID CODE QUALIFIER M ID 01/02	ID CODE M ID 02/17	CLIENT BANK NUMBER O NO 03/09

C205 7	C206 107	C207 38	
BANK ACC. NUMBER O NO 06/17	PAYMENT METHOD O ID 01/01	EFFECTIVE PAYMENT DTE O DT 06/06	N/L

63 CHARACTERS MAXIMUM LENGTH

C3 CURRENCY

PURPOSE: TO SPECIFY THE CURRENCY BEING USED IN THE TRANSACTION SET

	C	1	0	0

CURRENCY IS IMPLIED BY THE CODE FOR THE COUNTRY IN WHOSE CURRENCY THE MONETARY AMOUNTS ARE SPECIFIED.

C301 = BILLING CURRENCY
C303 = PAYMENT CURRENCY

	C301 100	C302 280	C303 100	
C3	CURRENCY CODE M ID 03/03	EXCHANGE RATE C R 04/06	CURRENCY CODE C ID 03/03	N/L

18 CHARACTERS MAXIMUM LENGTH

ITD TERM OF SALE/DEFERRED TERMS OF SALE

PURPOSE: TO SPECIFY TERMS OF SALE.

	C	1	0	0

IF ITD01 = 04, ITD10 IS REQUIRED AND EITHER ITD011 OR ITD012 IS REQUIRED.

IF ITD01 = 05, ITD06 OR ITD07 IS REQUIRED.

IF ITD01 DOES NOT = 04 OR 05, ITD03 OR ITD08 IS REQUIRED.

	ITD01 336	ITD02 333	ITD03 338	ITD04 370
ITD	TERMS TYPE CODE M ID 02/02	TERMS BASIS DATE CODE M ID 01/02	TERMS DISCOUNT % L030405 C R 01/06	TM DISCOUNT DUE DATE C DT 06/06

REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

ITD05 351		ITD06 446		ITD07 386		ITD08 362	
TERMS DISC. DAYS DUE	*	TERMS NET DUE DATE	*	TERMS NET DAYS	*	TM DISCOUNT AMOUNT L080405	*
C N0 01/03		C DT 96/06		C N0 01/03		C N2 01/10	

ITD09 388		ITD10 389		ITD11 342		ITD12 352	
TERMS DEF DUE DATE C0910	*	DEFERRED AMOUNT DUE C0910	*	I INVOICE PAYABLE	*	DESCRIPTION	*
C DT 06/06		C N2 01/10		C R 01/05		C AN 01/80	

ITD13 765	
DAY OF MON	N L
C N0 01/02	

158 CHARACTERS MAXIMUM LENGTH

N9 REFERENCE NUMBER

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS AND DESCRIPTIVE INFORMATION AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER

C 10 0 0

NOTE: THE RELATIONSHIP BETWEEN THE SECOND AND THIRD DATA ELEMENTS IS "REQUIRED" INDICATING THAT AT LEAST ONE OF THESE DATA ELEMENTS MUST BE USED WHEN THIS SEGMENT IS USED.

		N901 128		N902 127		N903 369		N904 373	
N9	*	REFERENCE NO. QUAL.	*	REFERENCE NUMBER R020.	*	FREE-FORM DESCR. R0203	*	DATE	*
		M ID 02/02		C AN 01/30		C AN 01/45		O DT 06/06	

N905 337	
TIME	N L
O TM 04/04	

95 CHARACTERS MAXIMUM LENGTH

210 FREIGHT DETAILS AND INVOICE (MOTOR) M2/2

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	1	2101	10

N1 NAME

PURPOSE: TO IDENTIFY A PARTY BY TYPE OF ORGANIZATION, NAME AND CODE

	N101 98	N102 93	N103 66	N104 67	
N1	ORGANIZAT'N IDENTIFIER	NAME	ID CODE QUALIFIER P0304	ID CODE P0304	NL
	M ID 02/02	C AN 01/35	C ID 01/02	C ID 02/17	

63 CHARACTERS MAXIMUM LENGTH

C	1	2101

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE NAME.

N2 ADDITIONAL NAME INFORMATION

PURPOSE: TO SPECIFY ADDITIONAL NAMES OR THOSE LONGER THAN 35 CHARACTERS IN LENGTH

	N201 93	N202 93	
N2	NAME	NAME	NL
	M AN 01/35	O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

C	2	2101

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

N3 ADDRESS INFORMATION

PURPOSE: TO SPECIFY THE LOCATION OF THE NAMED PARTY

	N301 166	N302 166	
N3	ADDRESS	ADDRESS	NL
	M AN 01/35	O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

N4 GEOGRAPHIC LOCATION

PURPOSE: TO SPECIFY THE GEOGRAPHIC PLACE OF THE NAMED PARTY

C 1 2101 O

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

		N401 19		N402 156		N403 116		N404 26	
N4	*	CITY NAME R0105 C AN 02/19	*	STATE/PROV. CODE C0102 C ID 02/02	*	POSTAL CODE O ID 05/09	*	COUNTRY CODE O ID 02/02	*

N405 309		N406 310	
LOCATION QUALIFIER P0506 C ID 01/02	*	LOCATION IDENT P0506 C AN 01/25	NL

68 CHARACTERS MAXIMUM LENGTH

N9 REFERENCE NUMBER

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS AND DESCRIPTIVE INFORMATION AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER

C 5 2101 O

NOTE: THE RELATIONSHIP BETWEEN THE SECOND AND THIRD DATA ELEMENTS IS "REQUIRED" INDICATING THAT AT LEAST ONE OF THESE DATA ELEMENTS MUST BE USED WHEN THIS SEGMENT IS USED.

		N901 128		N902 127		N903 369		N904 373	
N9	*	REFERENCE NO. QUAL. M ID 02/02	*	REFERENCE NUMBER R0203 C AN 01/30	*	FREE-FORM DESCR. R0203 C AN 01/45	*	DATE O DT 06/06	*

N905 337	
TIME O TM 04/04	NL

95 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

K1 REMARKS

PURPOSE: TO TRANSMIT INFORMATION IN A FREE-FORM FORMAT, IF NECESSARY, FOR COMMENT OR SPECIAL INSTRUCTION

	O	30	O	O

		K101 61		K102 61	
K1	*	GENERAL REMARKS M AN 01/30	*	GENERAL REMARKS O AN 01/30	N L

65 CHARACTERS MAXIMUM LENGTH

P1 PICK-UP

PURPOSE: TO SPECIFY THE PICK-UP DETAILS INCLUDING TIME, DATE AND EQUIPMENT

	O	1	O	O

		P101 108		P102 109		P103 110		P104 111	
P1	*	PICK-UP OR DELIV. CODE C ID 02/02	*	PICK-UP DATE M DT 06/06	*	PICK-UP DATE QUAL M ID 01/01	*	PICK-UP TIME C TM 04/04	*

	P105 206		P106 207	
	EQUIPMENT INITIAL O AN 01/04	*	EQUIPMENT NUMBER O AN 01/07	N L

33 CHARACTERS MAXIMUM LENGTH

S8 STOP-OFF

PURPOSE: TO SPECIFY REASON, WEIGHT, AND QUANTITY DETAILS FOR A STOP-OFF

(THE SEQUENCE OF SEGMENTS S8 AND S9 MAY BE REPEATED UP TO 50 TIMES)

	C	1	2102	50

		S801 165		S802 163		S803 162		S804 187	
S8	*	STOP SEQ. NUMBER M NO 01/02	*	STOP REASON CODE M ID 02/02	*	STOP-OFF WEIGHT M NO 03/08	*	WEIGHT QUALIFIER M ID 01/02	*

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

S805 80	S806 103	S807 164	S808 93
LADING QUANTITY	PACKAGING CODE	STOP REASON DESCRIPTION	NAME
C N0 01/07	O ID 05/05	C AN 02/20	O AN 01/35

S809 66	S810 67	
ID CODE QUALIFIER	ID CODE P0910	NL
O ID 01/02	C ID 02/17	

113 CHARACTERS MAXIMUM LENGTH

S9 STOP-OFF STATION

PURPOSE: TO SPECIFY LOCATION DETAILS FOR A STOP-OFF

C 1 2102 O

	S901 165	S902 154	S903 19	S904 156
S9	STOP SEQ. NUMBER	SPLC	CITY NAME	STATE/PROV. CODE
	M N0 01/02	O ID 06/09	M AN 02/19	M ID 02/02

S905 26	S906 163	S907 309	S908 310	
COUNTRY CODE	STOP REASON CODE	LOCATION QUALIFIER	LOCATION IDENT P0708	NL
O ID 02/02	M ID 02/02	O ID 01/02	C AN 01/25	

74 CHARACTERS MAXIMUM LENGTH

R2 ROUTE INFORMATION

PURPOSE: TO SPECIFY CARRIER AND ROUTING SEQUENCES AND DETAILS

C 4 O O

	R201 140	R202 133	R203 77	R204 154
R2	SCAC	ROUTING SEQ. CODE	INTLN STAT. CITY NAME	SPLC
	M ID 02/04	M ID 01/02	C AN 02/19	C ID 06/09

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

R205 177	*	R206 91	*	R207 296	*	R208 296	*
TOFC PLAN CODE		MODE		INTER SWITCH		INTER SWITCH	
C ID 01/02		O ID 01/02		O ID 02/04		O ID 02/04	

R209 76	*	R210 12	*	R211 369	*	R212 56	*
INVOICE NUMBER		BILLING DATE		FREE-FORM DESCR.		TYPE OF SVC CODE	
C AN 01/22		C DT 06/06		O AN 01/45		O ID 02/02	

R213 742	N
ROUTE DESCRIPTION	L
O AN 01/35	

172 CHARACTERS MAXIMUM LENGTH

H3 SPECIAL HANDLING INSTRUCTIONS

PURPOSE: TO SPECIFY SPECIAL HANDLING INSTRUCTIONS IN CODED OR FREE-FORM

C 6 0 0

H3	*	H301 152	*	H302 153	*	H303 241	*	H304 242	*
		SPECIAL HANDLING CD E0102		SPECIAL HAND. DESCR E0102		PROTECTIVE SERVICE		VENT INSTRUCT.	
		C ID 02/03		C AN 02/30		C ID 01/08		C ID 01/07	

H305 257	N
TARIFF APPL. CODE	L
C ID 01/01	

57 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

N6 SID REFERENCE NUMBERS

PURPOSE: TO TRANSMIT SHIPMENT IDENTIFICATION NUMBERS FOR TRANSACTIONS SETS WHICH REFERENCE MORE THAN ONE SUCH NUMBER

THIS SEGMENT IS THE BEGINNING OF THE LINE ITEM LOOP

C 1 2103 999

		N601 145	
N6	*	SHIPMENT ID NO. (SID)	N L
		M AN 01/12	

16 CHARACTERS MAXIMUM LENGTH

N1 NAME

PURPOSE: TO IDENTIFY A PARTY BY TYPE OF ORGANIZATION, NAME AND CODE

(N1 THROUGH N4 ARE REPEATED TWICE WITHIN THE ITEM LOOP TO PERMIT THE ASSOCIATION OF UP TO TWO NAMES AND ADDRESSES WITH EACH ITEM.)

C 1 2103 0

		N101 98		N102 93		N103 66		N104 67	
N1	*	ORGANIZAT'N IDENTIFIER	*	NAME R0203	*	ID CODE QUALIFIER P0304	*	ID CODE P0304	N L
		M ID 02/02		C AN 01/35		C ID 01/02		C ID 02/17	

63 CHARACTERS MAXIMUM LENGTH

N2 ADDITIONAL NAME INFORMATION

PURPOSE: TO SPECIFY ADDITIONAL NAMES OR THOSE LONGER THAN 35 CHARACTERS IN LENGTH

C 1 2103 0

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE NAME.

		N201 93		N202 93	
N2	*	NAME	*	NAME	N L
		M AN 01/35		O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

N3 ADDRESS INFORMATION

PURPOSE: TO SPECIFY THE LOCATION OF THE NAMED PARTY

C 2 2103 O

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

	N301 166	N302 166	
N3	ADDRESS	ADDRESS	NL
	M AN 01/35	O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

N4 GEOGRAPHIC LOCATION

PURPOSE: TO SPECIFY THE GEOGRAPHIC PLACE OF THE NAMED PARTY

C 1 2103 O

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

	N401 19	N402 156	N403 116	N404 26
N4	CITY NAME R0105	STATE/PROV. CODE C0102	POSTAL CODE	COUNTRY CODE
	C AN 02/19	C ID 02/02	O ID 05/09	O ID 02/02

	N405 309	N406 310	
	LOCATION QUALIFIER P0506	LOCATION IDENT P0506	NL
	C ID 01/02	C AN 01/25	

68 CHARACTERS MAXIMUM LENGTH

N1 NAME

PURPOSE: TO IDENTIFY A PARTY BY TYPE OF ORGANIZATION, NAME AND CODE

C 1 2103)

	N101 98	N102 93	N103 66	N104 67
N1	ORGANIZAT'N IDENTIFIER	NAME R0203	ID CODE QUALIFIER P0304	ID CODE P0304
	M ID 02/02	C AN 01/35	C ID 01/02	C ID 02/17

63 CHARACTERS MAXIMUM LENGTH

REQUIRE- MAX LOOP LOOP
MENT USE ID INDEX

N2 ADDITIONAL NAME INFORMATION

PURPOSE: TO SPECIFY ADDITIONAL NAMES OR THOSE LONGER THAN 35 CHARACTERS IN LENGTH

C 1 2103 0

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE NAME.

		N201 93		N202 93	
N2	*	NAME	*	NAME	N: L
		M AN 01/35		O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

N3 ADDRESS INFORMATION

PURPOSE: TO SPECIFY THE LOCATION OF THE NAMED PARTY

C 2 2103 0

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

		N301 166		N302 166	
N3	*	ADDRESS	*	ADDRESS	N: L
		M AN 01/35		O AN 01/35	

75 CHARACTERS MAXIMUM LENGTH

N4 GEOGRAPHIC LOCATION

PURPOSE: TO SPECIFY THE GEOGRAPHIC PLACE OF THE NAMED PARTY

C 1 2103 0

THIS IS A REQUIRED SEGMENT IF ADDITIONAL INFORMATION IS REQUIRED TO COMPLETELY SPECIFY THE ADDRESS.

		N401 19		N402 156		N403 116		N404 26	
N4	*	CITY NAME R0105	*	STATE/PROV. CODE C0102	*	POSTAL CODE	*	COUNTRY CODE	*
		C AN 02/19		C ID 02/02		O ID 05/09		O ID 02/02	

		N405 309		N406 310	
		LOCATION QUALIFIER P0506	*	LOCATION IDENT P0506	N: L
		C ID 01/02		C AN 01/25	

68 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	5	2103	0

N9 REFERENCE NUMBER

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS AND DESCRIPTIVE INFORMATION AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER

	N901 128	N902 127	N903 369	N904 373
N9	REFERENCE NO. QUAL.	REFERENCE NUMBER R0203	FREE-FORM DESCR. R0203	DATE
	M ID 02/02	C AN 01/30	C AN 01/45	O DT 06/06

NOTE: THE RELATIONSHIP BETWEEN THE SECOND AND THIRD DATA ELEMENTS IS "REQUIRED" INDICATING THAT AT LEAST ONE OF THESE DATA ELEMENTS MUST BE USED WHEN THIS SEGMENT IS USED.

N905 337	NL
TIME	
O TM 04/04	

95 CHARACTERS MAXIMUM LENGTH

P1 PICK-UP

PURPOSE: TO SPECIFY THE PICK-UP DETAILS INCLUDING TIME, DATE AND EQUIPMENT

	O	1	2103	0

	P101 108	P102 109	P103 110	P104 111
P1	PICK-UP OR DELIV. CODE	PICK-UP DATE	PICK-UP DATE QUAL	PICK-UP TIME
	C ID 02/02	M DT 06/06	M ID 01/01	C TM 04/04

P105 206	P106 207	NL
EQUIPMENT INITIAL	EQUIPMENT NUMBER	
O AN 01/04	O AN 01/07	

33 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	1	2103	0

P2 DELIVERY

PURPOSE: TO SPECIFY DELIVERY DATE

	P201 108	P202 J2	P203 JJ	
P2	PICK-UP OR DELIV. CODE C ID 02/02	DELIVERY DATE M DT 06/06	DELIVERY DATE QUAL. M ID 01/01	NL

15 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	C	5	2103	0

N7 EQUIPMENT DETAILS

PURPOSE: TO SPECIFY THE EQUIPMENT DETAILS IN TERMS OF IDENTIFYING NUMBERS, OWNERSHIP, WEIGHTS AND VOLUMES

"RAILM" IN N701 INDICATES THAT THE DATA ELEMENT IS MANDATORY FOR RAIL TRANSACTIONS.

	N701 206	N702 207	N703 81	N704 187
N7	EQUIPMENT INITIAL RAILM C AN 01/04	EQUIPMENT NUMBER M AN 01/07	WEIGHT C0304 C R 01/08	WEIGHT QUALIFIER C ID 01/02

	N705 167	N706 232	N707 205	N708 183
	TARE WEIGHT P0516 C NO 03/08	WEIGHT ALLOWANCE C NO 02/06	DUNNAGE C NO 01/06	VOLUME P0809 O R 01/08

	N709 184	N710 102	N711 40	N712 307
	VOLUME UNIT QUALIFIER P0809 C ID 01/01	OWNERSHIP CODE O ID 01/01	EQUIPMENT DESC CODE C ID 02/02	EQUIPMENT OWNER C ID 01/04

	N713 319	N714 219	N715 567	N716 571
	TEMPERATURE CONTROL O AN 03/06	POSITION O AN 01/03	EQUIPMENT LENGTH O NO 04/05	TARE QUALIFIER P0516 C ID 01/01

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

N717 188	*	N718 761	*	N719 56	N/L
WEIGHT UNIT QUALIFIER		INTMDL EQUP NO CHK DIG		TYPE OF SVC CODE	
C ID 01/01		O NO 01/01		O ID 02/02	

98 CHARACTERS MAXIMUM LENGTH

L5 DESCRIPTION, MARKS AND NUMBERS

PURPOSE: TO SPECIFY THE LINE ITEM IN TERMS OF DESCRIPTION, QUANTITY, PACKAGING, AND MARKS AND NUMBERS

C 30 2100 O

		L501 213	*	L502 79	*	L503 22	*	L504 23	*
L5	*	LADING LINE NUMBER		LADING DESCRIPTION		COMMODITY CODE P0304		COMMODITY CODE QUAL. P0304	
		M NO 01/03		C AN 01/25		C ID 01/10		C ID 01/01	

NOTE: L503 AND L504 ARE "PAIRED" DATA ELEMENTS. IF ONE IS USED, BOTH MUST BE USED EXCEPT FOR RAIL TRANSACTION SETS WHERE STCC IS UNDERSTOOD.

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

L505 103	*	L506 87	*	L507 88	N/L
PACKAGING CODE		MARKS AND NUMBERS		MARKS AND NOS. QUAL.	
O ID 05/05		O AN 01/45		O ID 01/02	

101 CHARACTERS MAXIMUM LENGTH

L0 LINE ITEM - QUANTITY AND WEIGHT

PURPOSE: TO SPECIFY QUANTITY, WEIGHT AND VOLUME FOR A LINE ITEM INCLUDING APPLICABLE "QUANTITY/RATED-AS" DATA

C 10 2100 O

		L001 213	*	L002 220	*	L003 221	*	L004 81	*
L0	*	LADING LINE NUMBER		BILLED/ RATE-AS-QTY P0203		QUAN BILLED /RATED-AS P0203		WEIGHT P0405	
		M NO 01/03		C NO 01/11		C ID 02/02		C R 01/08	

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

L005 187	L006 183	L007 184	L008 80
WEIGHT QUALIFIER P0405	VOLUME P0607	VOLUME UNIT QUALIFIER P0607	LADING QUANTITY
C ID 01/02	C R 01/08	C ID 01/01	C N0 01/07

L009 211	L010 458	L011 188	
LADING QTY QUALIFIER	DUNNAGE DESCRIPTION	WEIGHT UNIT QUALIFIER	NL
C ID 03/03	C AN 02/25	C ID 01/01	

85 CHARACTERS MAXIMUM LENGTH

L1 RATE AND CHARGES

PURPOSE: TO SPECIFY RATE AND CHARGES DETAIL RELATIVE TO A LINE ITEM INCLUDING FREIGHT CHARGES, ADVANCES, SPECIAL CHARGES, AND ENTITLEMENTS

C 10 2103 0

NOTE: DATA ELEMENTS L104, L105, AND L106 ARE "REQUIRED" ELEMENTS, INDICATING THAT AT LEAST ONE OF THE REFERENCED ELEMENTS *MUST BE USED.*

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

	L101 213	L102 60	L103 122	L104 58
L1	LADING LINE NUMBER	FREIGHT RATE	RATE/VALUE QUALIFIER	CHARGE R040506
	M N0 01/03	C N4 04/09	C ID 02/02	C N2 01/09

L105 191	L106 117	L107 120	L108 150
ADVANCES R040506	PREPAID AMOUNT R040506	RATE COMB. POINT	SPECIAL CHARGE CODE
C N2 01/09	C N2 01/09	C ID 03/09	C ID 03/03

L109 121	L110 39	L111 16	L112 276
RATE CLASS	ENTITLEMENT CODE	CHG METHOD OF PAYMENT	SPECIAL CHG DESCR
C ID 01/03	C ID 01/01	C ID 01/01	C AN 02/25

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

	L113 257	
	TARIFF APPL. CODE	N L
	C ID 01/01	

100 CHARACTERS MAXIMUM LENGTH

L4 MEASUREMENT

PURPOSE: TO DESCRIBE PHYSICAL DIMENSIONS

C 10 2103 0

	L401 82	L402 189	L403 65	L404 90	
L4 *	LENGTH	WIDTH	HEIGHT	MEASUREMENT UNIT QUAL.	N L
	M R 01/06	M R 01/08	M R 01/06	M ID 01/01	

28 CHARACTERS MAXIMUM LENGTH

L6 CARRIERS LINE ITEM REFERENCE NUMBER

PURPOSE: TO INDICATE CARRIER LINE ITEM IDENTIFYING NUMBER AND PICK-UP DATE

O 1 2103 0

	L601 198	L602 109	
L6 *	CARRIERS LINE ITEM	PICK-UP DATE	N L
	O AN 03/12	O DT 06/06	

23 CHARACTERS MAXIMUM LENGTH

L7 TARIFF REFERENCE

PURPOSE: TO REFERENCE DETAILS OF THE TARIFF USED TO ARRIVE AT APPLICABLE RATES OR CHARGE

O 10 2103 0

	L701 213	L702 168	L703 171	L704 172	
L7 *	LADING LINE NUMBER	TARIFF AGENCY CODE	TARIFF NUMBER	TARIFF SECTION	*
	O NO 01/03	O ID 01/04	O AN 01/07	O NO 01/02	

NOTE: RELATED L5, L0, L1 AND L7 SEGMENTS HAVE THE SAME SEQUENCE NUMBER IN THE FIRST DATA ELEMENT (LINE NUMBER).

"CITY" AND "STATE" IN L715 AND L716 ARE USED FOR RATE COMBINATION CITY AND STATE.

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

L705 169	L706 170	L707 59	L708 173
TARIFF ITEM NUMBER	TARIFF ITEM PART	FREIGHT CLASS	TARIFF SUPPLEMENT
O AN 01/10	O NO 01/02	O ID 02/05	O AN 01/04

L709 46	L710 37	L711 119	L712 227
EX PARTE	EFFECTIVE DATE	RATE BASIS NUMBER	TARIFF COLUMN
O AN 04/04	O DT 06/06	O AN 02/06	O AN 01/02

L713 294	L714 295	L715 19	L716 156	
TARIFF DISTANCE	DISTANCE QUALIFIER	CITY NAME	STATE/PROV. CODE	N/L
O NO 01/05	O ID 01/01	O AN 02/19	O ID 02/02	

101 CHARACTERS MAXIMUM LENGTH

L8 LINE ITEM SUBTOTAL

PURPOSE: TO SPECIFY LINE ITEM SUBTOTALS

THIS SEGMENT IS THE END OF THE LINE ITEM LOOP

O 1 2103 O

	L801 220	L802 221	L803 81	L804 188
L8	BILLED/ RATE-AS-QTY P0102	QUAN BILLED /RATED-AS P0102	WEIGHT P030405	WEIGHT UNIT QUALIFIER P030405
	C NO 01/11	C ID 02/02	C R 01/08	C ID 01/01

L805 187	L806 60	L807 122	L808 58
WEIGHT QUALIFIER P030405	FREIGHT RATE P0607	RATE/VALUE QUALIFIER P0607	CHARGE
C ID 01/02	O N4 04/09	C ID 02/02	C N2 01/09

REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

L809 150		L810 276		L811 16	
SPECIAL CHARGE CODE C0908	*	SPECIAL CHG DESCR	*	CHG METHOD OF PAYMENT	N L
C ID 03/03		O AN 02/25		C ID 01/01	

87 CHARACTERS MAXIMUM LENGTH

K1 REMARKS

PURPOSE: TO TRANSMIT INFORMATION IN A FREE-FORM FORMAT, IF NECESSARY, FOR COMMENT OR SPECIAL INSTRUCTION

O 30 2103 O

	K101 61		K102 61	
K1	* GENERAL REMARKS	*	GENERAL REMARKS	N L
	M AN 01/30		O AN 01/30	

65 CHARACTERS MAXIMUM LENGTH

L3 TOTAL WEIGHT AND CHARGES

PURPOSE: TO SPECIFY THE TOTAL SHIPMENT IN TERMS OF WEIGHT, VOLUME, RATES, CHARGES, ADVANCES, AND PREPAID AMOUNTS APPLICABLE TO ONE OR MORE LINE ITEMS

M 1 O O

NOTE: L305 IS THE TOTAL CHARGES.

NOTE: THERE ARE THREE GROUPS OF "PAIRED" DATA ELEMENTS - L301 AND L302, L303 AND L304, AND L309 AND L310. WHEN ONE MEMBER OF A PAIR IS USED, BOTH MUST BE USED.

	L301 81		L302 187		L303 60		L304 122	
L3	* WEIGHT P0102	*	WEIGHT QUALIFIER P0102	*	FREIGHT RATE P0304	*	RATE/VALUE QUALIFIER P0304	*
	C R 01/08		C ID 01/02		O N4 04/09		O ID 02/02	

L305 58		L306 191		L307 117		L308 150	
CHARGE	*	ADVANCES	*	PREPAID AMOUNT	*	SPECIAL CHARGE CODE	*
C N2 01/09		C N2 01/09		C N2 01/09		C ID 03/03	

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX

	L309 183		L310 184		L311 80		L312 188	
	VOLUME P0910 C R 01/08	*	VOLUME UNIT QUALIFIER P0910 C ID 01/01	*	LADING QUANTITY C NO 01/07	*	WEIGHT UNIT QUALIFIER C ID 01/01	N L

83 CHARACTERS MAXIMUM LENGTH

K1 REMARKS

PURPOSE: TO TRANSMIT INFORMATION IN A FREE-FORM FORMAT, IF NECESSARY, FOR COMMENT OR SPECIAL INSTRUCTION

O 30 O O

		K101 61		K102 61	
K1	*	GENERAL REMARKS M AN 01/30	*	GENERAL REMARKS O AN 01/30	N L

65 CHARACTERS MAXIMUM LENGTH

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

M 1 O O

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

		SE01 96		SE02 329	
SE	*	NUMBER OF INCL. SEG. A16 M NO 01/06	*	TRANS. SET CONTROL NO. A17 M AN 04/09	N L

20 CHARACTERS MAXIMUM LENGTH

ANNEX 4

#980 – FUNCTIONAL GROUP TOTALS STANDARD

980 FUNCTIONAL GROUP TOTALS

ABSTRACT: THIS TRANSACTION SET IS USED TO TRANSMIT SELECTED TOTALS AND ACCUMULATED TOTALS TO DATE FOR EACH TYPE OF TRANSACTION SET CONTAINED IN A FUNCTIONAL GROUP. (THIS TRANSACTION SET DOES NOT HAVE A "VERSION" LABEL SINCE IT IS USED IN FUNCTIONAL GROUPS WITH OTHER TYPES OF TRANSACTION SETS.)

		REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST	TRANSACTION SET HEADER	M	1	0	0
BT1	BATCH TOTALS	M	10	0	0
BT2	END OF FISCAL TIME PERIOD	O	1	0	0
SE	TRANSACTION SET TRAILER	M	1	0	0

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

ST TRANSACTION SET HEADER

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

M 1 0 0

"A01" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

		ST01 143		ST02 329	
ST	*	TRANSACTION SET ID A01	*	TRANS. SET CONTROL NO. A02	NL
		M ID 03/03		M AN 04/09	

17 CHARACTERS MAXIMUM LENGTH

BT1 BATCH TOTALS

PURPOSE: TO SPECIFY BATCH TOTALS OF MONETARY DATA ELEMENTS, WEIGHTS, OR QUANTITY

M 10 0 0

		BT101 143		BT102 515		BT103 516		BT104 517	
BT1	*	TRANSACTION SET ID	*	NUMBER OF TRANS. SETS	*	TOTAL QUALIFIER	*	DATA ELE. TOTALLED	*
		M ID 03/03		M NO 01/07		M ID 01/01		O AN 04/05	

	BT105 518		BT106 516		BT107 517		BT108 518	
	TOTAL	*	TOTAL QUALIFIER	*	DATA ELE. TOTALLED	*	TOTAL P0608	*
	M R 01/11		O ID 01/01		O AN 04/05		C R 01/11	

	BT109 516		BT110 517		BT111 518	
	TOTAL QUALIFIER	*	DATA ELE. TOTALLED	*	TOTAL P0911	NL
	O ID 01/01		O AN 04/05		C R 01/11	

76 CHARACTERS MAXIMUM LENGTH

980 FUNCTIONAL GROUP TOTALS

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	1	0	0

BT2 END OF FISCAL TIME PERIOD

PURPOSE: TO SIGNIFY THE END OF THE TIME PERIOD INDICATED AND TO RESET ACCUMULATED TOTALS TO ZERO FOR THE NEXT FUNCTIONAL GROUP OF TRANSACTION SETS

		BT201 519		BT202 520		BT203 519		BT204 520	
BT2	*	TIME PERIOD QUALIFIER	*	TIME PERIOD COMPLETED	*	TIME PERIOD QUALIFIER	*	TIME PERIOD COMPLETED P0304	NL
		M ID 01/01		M NO 02/02		O ID 01/01		C NO 02/02	

14 CHARACTERS MAXIMUM LENGTH

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	M	1	0	0

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

		SE01 96		SE02 329		
SE	*	NUMBER OF INCL. SEG. A16	*	TRANS. SET CONTROL NO. A17	*	NL
		M NO 01/06		M AN 04/09		

20 CHARACTERS MAXIMUM LENGTH

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

ANNEX 5

#996 – FILE TRANSFER STANDARD

996 FILE TRANSFER G2/2

ABSTRACT: THIS SET IS USE TO TRANSMIT FILE INFORMATION IN FORMATS AGREED TO BY THE SENDING AND RECEIVING PARTIES.

		REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST	TRANSACTION SET HEADER	M	1	0	0
BGF	BEGINNING SEGMENT FOR FILE TRANSFER INFORMATION	M	1	0	0
K3	FILE INFORMATION	M	997	0	0
SE	TRANSACTION SET TRAILER	M	1	0	0

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST TRANSACTION SET HEADER	M	1	O	O

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

		ST01 143		ST02 329	
ST	*	TRANSACTION SET ID A01 M ID 03/03	*	TRANS. SET CONTROL NO. A02 M AN 04/09	NL

17 CHARACTERS MAXIMUM LENGTH

"A01" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
BGF BEGINNING SEGMENT FOR FILE TRANSFER INFORMATION	M	1	O	O

PURPOSE: TO TRANSMIT IDENTIFYING NUMBERS, DATES AND OTHER BASIC DATA RELATING TO THE TRANSACTION SET

		BGF01 143		BGF02 128		BGF03 127	
BGF	*	TRANSACTION SET ID O ID 03/03	*	REFERENCE NO. QUAL. M ID 02/02	*	REFERENCE NUMBER M AN 01/30	NL

42 CHARACTERS MAXIMUM LENGTH

NOTE: THE REFERENCE NUMBER QUALIFIER CODE FOR FILE IDENTIFIER IS "FI".

DUE TO THE INSTALLATION OF THE "ST" SEGMENT IN ALL TRANSACTION SETS, DATA ELEMENT 143 IN ALL OF THE "B" SEGMENTS IS REDUNDANT. DE143 WILL BE RETAINED AS AN OPTIONAL DATA ELEMENT FOR A PERIOD OF ADJUSTMENT. IT IS SUGGESTED THAT DE143 NOT BE TRANSMITTED SO IT MAY BE DROPPED FROM SEGMENT DEFINITIONS IN THE FUTURE.

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
K3 FILE INFORMATION	M	997	O	O

PURPOSE: TO TRANSMIT A FIXED FORMAT RECORD

		K301 449	
K3	*	FIX FORMAT INFO M AN 01/80	NL

84 CHARACTERS MAXIMUM LENGTH

REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX
M	1	O	O

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

		SE01 96		SE02 329	
SE	*	NUMBER OF INCL. SEG. A16 M NO 01/06	*	TRANS. SET CONTROL NO. A17 M AN 04/09	NL

20 CHARACTERS MAXIMUM LENGTH

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

ANNEX 6

#997 – FUNCTIONAL ACKNOWLEDGMENT STANDARD

997 FUNCTIONAL ACKNOWLEDGMENT 002001

ABSTRACT: THIS TRANSACTION SET IS SENT IN REPLY TO EACH FUNCTIONAL GROUP EXCEPT THOSE CONTAINING ACCEPTANCE/REJECTION TRANSACTION SETS WHICH REQUIRE NO REPLY. THE INTENT OF THIS SET IS TO PROVIDE A POSITIVE INDICATION THAT ALL TRANSACTION SETS TRANSMITTED WERE RECEIVED AND, IF ERRORS EXIST, TO IDENTIFY THE DATA ELEMENT AND REASON FOR ERROR.

		REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX
ST	TRANSACTION SET HEADER	M	1	0	0
AK1	FUNCTIONAL GROUP RESPONSE HEADER	M	1	0	0
AK2	TRANSACTION SET RESPONSE HEADER	O	1	0100	999999
AK3	DATA SEGMENT NOTE	O	1	0110	999999
AK4	DATA ELEMENT NOTE	O	99	0110	0
AK5	TRANSACTION SET RESPONSE TRAILER	O	1	0100	0
AK9	FUNCTIONAL GROUP RESPONSE TRAILER	M	1	0	0
SE	TRANSACTION SET TRAILER	M	1	0	0

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
ST TRANSACTION SET HEADER	M	1	0	0

PURPOSE: TO INDICATE THE START OF A TRANSACTION SET AND TO ASSIGN A CONTROL NUMBER

"A01" IS A SPECIAL PROCESS USED IN THE EDI INTERFACE SOFTWARE TO PROCESS THE SET ID, VERSION AND FUNCTIONAL ID.

		ST01 143		ST02 329	
ST	*	TRANSACTION SET ID A01	*	TRANS. SET CONTROL NO. A02	N L
		M ID 03/03		M AN 04/09	

17 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
AK1 FUNCTIONAL GROUP RESPONSE HEADER	M	1	0	0

PURPOSE: TO START ACKNOWLEDGMENT OF A FUNCTIONAL GROUP.

AK101 AND AK102 CONTAIN THE SPECIFIC VALUES OF GS01 AND GS06 OF THE FUNCTIONAL GROUP BEING ACKNOWLEDGED.

		AK101 479		AK102 28	
AK1	*	FUNCTIONAL ID	*	DATA INTCHG CONTROL NO.	N L
		M ID 02/02		M NO 01/09	

17 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
AK2 TRANSACTION SET RESPONSE HEADER	O	1	0100	999999

PURPOSE: TO START ACKNOWLEDGMENT OF A SINGLE TRANSACTION SET.

AK201 AND AK202 CONTAIN THE SPECIFIC VALUES OF ST01 AND ST02 OF THE TRANSACTION SET BEING ACKNOWLEDGED.

		AK201 143		AK202 329	
AK2	*	TRANSACTION SET ID	*	TRANS. SET CONTROL NO.	N L
		M ID 03/03		M AN 04/09	

18 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	1	0110	999999

AK3 DATA SEGMENT NOTE

PURPOSE: TO REPORT ERRORS IN A DATA SEGMENT AND TO IDENTIFY THE LOCATION OF THE DATA SEGMENT.

	AK301 721	AK302 719	AK303 447	AK304 720
AK3	SEGMENT ID	SG POSITION IN SET	LOOP IDENTIFIER	SEGMENT NOTE CD
	M ID 02/03	M NO 01/06	O ID 01/04	O ID 01/03

AK305 720	AK306 720	AK307 720	AK308 720	
SEGMENT NOTE CD	SEGMENT NOTE CD	SEGMENT NOTE CD	SEGMENT NOTE CD	NL
O ID 01/03	O ID 01/03	O ID 01/03	O ID 01/03	

40 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	99	0110	O

AK4 DATA ELEMENT NOTE

PURPOSE: TO REPORT ERRORS IN A DATA ELEMENT AND TO IDENTIFY THE LOCATION OF THE DATA ELEMENT.

	AK401 722	AK402 725	AK403 723	AK404 724	
AK4	EL POSITION IN SEGMENT	DATA ELEMNT REF NUMBER	DATA ELEMNT NOTE CD	COPY OF BAD DATA ELEMNT	NL
	M NO 01/02	O NO 01/04	M ID 01/03	O AN 01/99	

116 CHARACTERS MAXIMUM LENGTH

	REQUIREMENT	MAX USE	LOOP ID	LOOP INDEX
	O	1	0100	O

IF AK501 CONTAINS AN "R", AK502 IS MANDATORY

AK5 TRANSACTION SET RESPONSE TRAILER

PURPOSE: TO ACKNOWLEDGE ACCEPTANCE OR REJECTION AND TO REPORT ERRORS IN A TRANSACTION SET.

	AK501 717	AK502 718	AK503 718	AK504 718
AK5	SET ACK CODE	TRANSACTION SET NOTE CD	TRANSACTION SET NOTE CD	TRANSACTION SET NOTE CD
	M ID 01/01	O ID 01/03	O ID 01/03	O ID 01/03

REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX

AK505 718		AK506 718	
TRANSACTION SET NOTE CD	*	TRANSACTION SET NOTE CD	N L
O ID 01/03		O ID 01/03	

26 CHARACTERS MAXIMUM LENGTH

AK9 FUNCTIONAL GROUP RESPONSE TRAILER

PURPOSE: TO ACKNOWLEDGE ACCEPTANCE OR REJECTION OF A FUNCTIONAL GROUP AND REPORT THE NUMBER OF INCLUDED TRANSACTION SETS FROM THE ORIGINAL TRAILER, THE ACCEPTED SETS, AND THE RECEIVED SETS IN THIS FUNCTIONAL GROUP.

		M	1	O O

IF AK901 CONTAINS AN "R", AK905 IS MANDATORY

AK902 CONTAINS THE SPECIFIC VALUE OF GE01 IN THE FUNCTIONAL GROUP BEING ACKNOWLEDGED.

	AK901 715		AK902 97		AK903 123		AK904 2	
AK9	GROUP ACK CODE	*	NUMBER OF INCL. SETS	*	NO. RECEIVE SETS	*	NUMBER OF ACCEPT SETS	*
	M ID 01/01		M N0 01/06		M N0 01/06		M N0 01/06	

AK905 716		AK906 716		AK907 716		AK908 716	
FUNCTIONAL GRP NOTE CD	*	FUNCTIONAL GRP NOTE CD	*	FUNCTIONAL GRP NOTE CD	*	FUNCTIONAL GRP NOTE CD	*
O ID 01/03		O ID 01/03		O ID 01/03		O ID 01/03	

AK909 716	
FUNCTIONAL GRP NOTE CD	N L
O ID 01/03	

47 CHARACTERS MAXIMUM LENGTH

	REQUIRE-MENT	MAX USE	LOOP ID	LOOP INDEX
	M	1	0	0

SE TRANSACTION SET TRAILER

PURPOSE: TO INDICATE THE END OF THE TRANSACTION SET AND PROVIDE THE COUNT OF THE TRANSMITTED SEGMENTS (INCLUDING THE BEGINNING AND ENDING (SE) SEGMENT)

		SE01 96		SE02 329	
SE	*	NUMBER OF INCL. SEG. A16 M NO 01/06	*	TRANS. SET CONTROL NO. A17 M AN 04/09	N L

20 CHARACTERS MAXIMUM LENGTH

THE CONTROL NUMBER IS THE SAME AS THAT USED IN THE CORRESPONDING HEADER.

NOTE: "A16" AND "A17" ARE SPECIAL PROCESS IDENTIFIERS IN THE EDI EDIT TABLES WHICH ARE USED TO CONSTRUCT OR CHECK THE DATA ELEMENTS IN THE "SE" SEGMENT.

ANNEX 7

DATA ELEMENT DICTIONARY

2 NUMBER OF ACCEPTED TRANSACTION SETS
(SPEC: TYPE= NO MIN= 1; MAX= 6)
NUMBER OF TRANSACTION SETS RECEIVED IN A FUNCTIONAL GROUP (NUMBER MAY BE 0)

REFERENCE DESIGNATOR(S): AK904 B502

7 BANK ACCOUNT NUMBER
(SPEC: TYPE= NO MIN= 6; MAX= 17)
ID NUMBER ASSIGNED BY BANK TO ITS CLIENT

REFERENCE DESIGNATOR(S): C205

8 BANK CLIENT CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING PAYEE OR PAYER:

CODE	DEFINITION
E	PAYEE
R	PAYER

REFERENCE DESIGNATOR(S): C201

11 BILLING CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING TYPE OF BILLING REQUIREMENT FOR MULTIPLE EQUIPMENT SHIPMENT:

CODE	DEFINITION
A	TEMPORARILY ARTICULATED LOAD
B	STRAIGHT PLAN
C	AVERAGE AGREEMENT
D	SWITCH BILL
E	STORAGE
F	DETENTION
M	MULTIPLE SHIPMENT BILLING
P	PAIRED TRAILER SHIPMENT
Q	MULTI-CAR TRANSIT
R	RULE 24 LEAD AND TRAILER EQUIPMENT ON SINGLE REVENUE BILL
S	SINGLE SHIPMENT BILLING
T	TRANSIT BILLING
U	UNIT TRAIN BILLING
V	NORMAL BILL OF LADING
W	NEGOTIABLE BILL OF LADING
X	STRAIGHT CONSIGNMENT BILL OF LADING
Y	ROUTE CODE BILL OF LADING

REFERENCE DESIGNATOR(S): B211 BM06

12 BILLING DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE OF THE CARRIER'S INVOICE

REFERENCE DESIGNATOR(S): B306 BM02 C004 R210

16 CHARGE METHOD OF PAYMENT
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE DEFINING METHOD OF PAYMENT:

CODE	DEFINITION
A	PREPAID CASH
B	PREPAID CREDIT
C	COLLECT CASH
D	COLLECT CREDIT
E	COLLECT

REFERENCE DESIGNATOR(S): L111 L811

19 CITY NAME
(SPEC: TYPE= AN MIN= 2; MAX= 19)
FREE-FORM TEXT FOR CITY NAME

REFERENCE DESIGNATOR(S): D401 D701 D906 E401 E701 F401 F701 F906 G401 H502 L715 N401 NB01 Q505 Q516 S402 S903 T209 T210 T604 T607 U401 U901 V905 W304 W404 XA02 XB04 Y106

20 CLIENT BANK NUMBER
(SPEC: TYPE= NO MIN= 3; MAX= 9)
FEDERAL RESERVE ROUTING CODE (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): C204

22 COMMODITY CODE
(SPEC: TYPE= ID MIN= 1; MAX= 10)
CODE DESCRIBING A COMMODITY OR GROUP OF COMMODITIES
(ALSO SEE DATA ELEMENT 23)

REFERENCE DESIGNATOR(S): AC02 E607 ED04 G514 GA02 L503 PR03 PR04 TD104 W203 W0111 W0411 XC04

23 COMMODITY CODE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING THE COMMODITY CODING SYSTEM USED FOR COMMODITY CODE (SEE APPENDIX A)

CODE	DEFINITION
A	SCHEDULE A, TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED
B	U.S. FOREIGN TRADE SCHEDULE B, STATISTICAL CLASSIFICATION OF DOMESTIC AND FOREIGN COMMODITIES EXPORTED FROM THE UNITED STATES
C	CANADIAN FREIGHT CLASSIFICATION
E	COORDINATED MOTOR FREIGHT CLASSIFICATION
F	FEDERAL SUPPLY CLASSIFICATION & NATIONAL STOCK NUMBER
G	CANADIAN WHEAT BOARD, GRAIN CODE FOR TERMINAL ELEVATOR ACCOUNTING
H	BRUSSELS NOMENCLATURE HARMONIZED SYSTEM (HARMONIZED BTN)
I	MILSTAMP
L	LAST CONTAINED CONTENTS STCC
M	NATIONAL MOTOR FREIGHT CLASSIFICATION (NMFC)
S	STANDARD INTERNATIONAL TRADE CLASSIFICATION (SITC)
T	STANDARD TRANSPORTATION COMMODITY CODE (STCC)
U	UNIFORM FREIGHT CLASSIFICATION (UFC)
Z	MUTUALLY DEFINED

ALSO SEE: COMMODITY CODE (22)

REFERENCE DESIGNATOR(S): AC01 GA01 L504 PR02
TD103 W0110 W0410

26 COUNTRY CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE (TWO CHARACTER ISO STANDARD COUNTRY)

(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): D404 D704 D904 E404
F404 F704 F904 N404
Q507 Q518 R405 R610
S405 S905 U404 U904
V907 X107

28 DATA INTERCHANGE CONTROL NUMBER
(SPEC: TYPE= NO MIN= 1; MAX= 9)
ASSIGNED NUMBER ORIGINATED AND MAINTAINED BY THE SENDER

REFERENCE DESIGNATOR(S): AK102 B504 F602 GE02
GS06

29 DATA INTERCHANGE DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE SENDER GENERATED A FUNCTIONAL GROUP OF TRANSACTION SETS

REFERENCE DESIGNATOR(S): B605 GS04

30 DATA INTERCHANGE TIME
(SPEC: TYPE= TM MIN= 4; MAX= 4)
TIME (HHMM) EXPRESSED IN 24-HOUR CLOCK TIME WHEN THE SENDER GENERATED A FUNCTIONAL GROUP OF TRANSACTION SETS (LOCAL TIME AT SENDER'S LOCATION)
(TIME RANGE: 0000 THROUGH 2359)

REFERENCE DESIGNATOR(S): B606 GS05

32 DELIVERY DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE FOR DELIVERY OF CARGO TO FINAL CONSIGNEE OR TO NEXT MODE

REFERENCE DESIGNATOR(S): B309 CD125 F0606 G0602
M206 P202 Q510 Q610

33 DELIVERY DATE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE QUALIFYING THE ACCURACY OF THE REFERENCED DELIVERY DATE:

CODE	DEFINITION
A	ACTUAL
E	ESTIMATED
R	REQUESTED

REFERENCE DESIGNATOR(S): B310 CD124 P203 Q511
Q611

37 EFFECTIVE DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE THAT THE RATES OR DATA APPLIED TO A SHIPMENT OR PATTERN ARE IN EFFECT

REFERENCE DESIGNATOR(S): B907 GH02 L710

38 EFFECTIVE PAYMENT DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE PAYMENT IS TO BE MADE

REFERENCE DESIGNATOR(S): C207

39 ENTITLEMENT CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING PARTY WHO IS ENTITLED TO SPECIAL CHARGES:

CODE	DEFINITION
A	AGENT
B	BROKER
C	CONSIGNEE
D	DESTINATION CARRIER
E	FORWARDER OR AGENT
I	ISSUING CARRIER
S	SHIPPER
X	OTHER - ENTITLEMENT EXPLAINED IN REMARKS (K1) SEGMENT

REFERENCE DESIGNATOR(S): L110

40 EQUIPMENT DESCRIPTION CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE IDENTIFYING TYPE OF EQUIPMENT USED FOR SHIPMENT

CODE	DEFINITION
AC	CLOSED CONTAINER
AF	AIR FREIGHT (BREAK BULK)
AT	CLOSED CONTAINER (CONTROLLED TEMPERATURE)
BC	COVERED BARGE
BG	BOGIE
BR	BARGE
BX	BOXCAR
CC	CONTAINER RESTING ON A CHASSIS
CH	CHASSIS
CL	CONTAINER (CLOSED TOP LENGTH UNSPECIFIED)
CN	CONTAINER
CO	CONTAINERIZED (CLOSED TOP LENGTH UNSPECIFIED)
CU	CONTAINER (OPEN TOP LENGTH UNSPECIFIED)
CV	CLOSED VAN
CX	CONTAINERIZED (OPEN TOP UNSPECIFIED LENGTH)
DT	DROP BACK TRAILER
DX	BOXCAR (DF EQUIPPED)
FR	FLAT BED TRAILER - REMOVABLE SIDES
FT	FLAT BED TRAILER
HC	HOPPER CAR (COVERED)
HO	HOPPER CAR (OPEN)
HP	HOPPER CAR (COVERED PNEUMATIC DISCHARGE)
HV	HIGH CUBE VAN
ID	IDLER CAR
IX	BOXCAR (INSULATED)
LU	LOAD/UNLOAD DEVICE ON EQUIPMENT
MX	BOXCAR (INTERIOR BULKHEADS)
OB	OCEAN VESSEL (BREAK BULK)
OT	OPEN TOP/FLAT BED TRAILER
OV	OPEN TOP VAN
PT	PROTECTED TRAILER

PU	PICK-UP TRUCK
RC	REFIGERATED (REEFER) CAR
RE	FLAT CAR (END BULKHEADS)
RF	FLAT CAR
RI	GONDOLA CAR (COVERED INTERIOR BULKHEADS)
RO	GONDOLA CAR (OPEN)
RR	RAIL CAR
RT	REFRIGERATED TRAILER
SC	SERVICE CAR
ST	REMOVABLE SIDE TRAILER
SV	VAN - SPECIAL IL, IN OR IH REQUIRMENTS
TL	TRAILER (NOT OTHERWISE SPECIFIED)
TR	TRACTOR
TS	REMOVABLE SIDE TRAILER
TT	TELESCOPING TRAILER
UL	UNIT LOAD DEVICE (ULD)
VC	CLOSED VAN
VO	OPEN TOP VAN
2B	20 FT. IL CONTAINER (CLOSED TOP)
20	20 FT. IL CONTAINER (OPEN TOP)
4B	40 FT. IL CONTAINER (CLOSED TOP)
40	40 FT. IL CONTAINER (OPEN TOP)

REFERENCE DESIGNATOR(S): N711 TD301 VID01 W204 W0901 W2705

46 EX PARTE
(SPEC: TYPE= AN MIN= 4; MAX= 4)
LEVEL OF RATES AS PUBLISHED IN THE TARIFF (GENERALLY REFERS TO RAIL RATE LEVELS)

REFERENCE DESIGNATOR(S): L709

56 TYPE OF SERVICE CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE SPECIFYING EXTENT OF TRANSPORTATION SERVICE REQUESTED

CODE	DEFINITION	
CS	CONTAINER STATION	
CY	CONTAINER YARD	
HH	HOUSE-TO-HOUSE	
HL	HEADLOAD OR DEVANNING	#
HP	HOUSE-TO-PIER	
NC	NON CONTAINERIZED CARGO	#
PH	PIER-TO-HOUSE	
PP	PIER-TO-PIER	

REFERENCE DESIGNATOR(S): CD105 N719 R212 Y203

57 FREIGHT BILL DISPOSITION CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE DEFINING THE FORM OF FREIGHT BILL PRESENTATION THE SHIPPER DESIRES FOR PREPAID SHIPMENTS:

CODE	DEFINITION
1	SUMMARY ELECTRONIC INVOICE
2	FULL ELECTRONIC INVOICE
3	PRINTED INVOICE SENT BY MAIL
4	COMBINATION OF 1 & 3
5	COMBINATION OF 2 & 3
6	NO PAPER INVOICE
7	COMBINATION OF 1 & 6
8	COMBINATION OF 2 & 6

REFERENCE DESIGNATOR(S): B215

58 CHARGE
(SPEC: TYPE= N2 MIN= 1; MAX= 9)
FOR A LINE ITEM: FREIGHT OR SPECIAL CHARGE: FOR THE TOTAL INVOICE: THE TOTAL CHARGES -- EXPRESSED IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED

REFERENCE DESIGNATOR(S): G6404 G6503 L104 L305 L808 X605 XH04

59 FREIGHT CLASS
(SPEC: TYPE= ID MIN= 2; MAX= 5)
CODE INDICATING GENERALIZED CLASSIFICATION THAT APPLIES TO ONE OR MORE ITEMS IN THE SHIPMENT, I.E., CLASS 70, 77.5, ETC. (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): L707 W0108 W0408

60 FREIGHT RATE
(SPEC: TYPE= N4 MIN= 4; MAX= 9)
TARIFF RATE THAT APPLIES TO THE SPECIFIC COMMODITY DEFINED IN THE LADING DESCRIPTION EXPRESSED WITH FOUR IMPLIED DECIMAL PLACES IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED IN THE TARIFF

REFERENCE DESIGNATOR(S): G511 L102 L303 LB06 M903 RB03

61 GENERAL REMARKS
(SPEC: TYPE= AN MIN= 1; MAX= 30)
FREE-FORM INFORMATION OF A GENERAL NATURE AND NOT ALREADY SPECIFIED IN A SPECIFIC DETAIL SEGMENT

REFERENCE DESIGNATOR(S): G6304 K101 K102 X701 X702

62 HAZARDOUS MATERIAL CODE
(SPEC: TYPE= ID MIN= 4; MAX= 10)
CODE RELATING TO HAZARDOUS MATERIAL CODE QUALIFIER FOR REGULATED HAZARDOUS MATERIALS (SEE APPENDIX A)
ALSO SEE: HAZARDOUS MATERIAL CODE QUALIFIER (208)

REFERENCE DESIGNATOR(S): H101

63 HAZARDOUS MATERIAL CONTACT
(SPEC: TYPE= AN MIN= 1; MAX= 24)
PHONE NUMBER AND NAME OF PERSON OR DEPARTMENT TO CONTACT IN CASE OF EMERGENCY

REFERENCE DESIGNATOR(S): H105

64 HAZARDOUS MATERIAL DESCRIPTION
(SPEC: TYPE= AN MIN= 2; MAX= 30)
MATERIAL NAME, SPECIAL INSTRUCTIONS, AND PHONE NUMBER IF ANY (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): H104 H201

65 HEIGHT
(SPEC: TYPE= R MIN= 1; MAX= 6)
VERTICAL DIMENSION OF AN OBJECT MEASURED WHEN THE OBJECT IS IN THE UPRIGHT POSITION
ALSO SEE: MEASUREMENT UNIT QUALIFIER (90)

UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): G3907 L403 P0415

66 IDENTIFICATION CODE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE DESIGNATING THE SYSTEM/METHOD OF CODE STRUCTURE USED FOR IDENTIFICATION CODE (67)

CODE	DEFINITION
1	DUN & BRADSTREET BUSINESS INFORMATION (DUNS)
2	SCAC
3	FMC
4	IATA
5	SIRET
7	DOCK
8	VENDOR UPC CODE
9	DUNS WITH 4,DIGIT SUFFIX (UCS USES CODES 9 & 10 ONLY)
10	DEPARTMENT OF DEFENSE ACTIVE ADDRESS CODE (DODAAC)
11	DRUG ENFORCEMENT ADMINISTRATION (DEA)
12	TELEPHONE NUMBER (PHONE)
13	FEDERAL RESERVE ROUTING CODE (FRRC)
14	INTERNATIONAL EUROPEAN ARTICLE NUMBER (EAN)
15	STANDARD ADDRESS NUMBER (SAN)
16	ZIP CODE
17	DISTRIBUTION CODES, INC (DCI)
18	AUTOMOTIVE INDUSTRY ACTION GROUP (AIAG)
19	FIPS
20	SPLC
91	ASSIGNED BY SELLER OR SELLER'S AGENT
92	ASSIGNED BY BUYER
ZZ	MUTUALLY DEFINED

REFERENCE DESIGNATOR(S): C105 C202 D102 D503 E102 F102 F503 F0108 F0806 F0911 N103 PWK05 Q407 S103 S809 U102 U502

67 IDENTIFICATION CODE
(SPEC: TYPE= ID MIN= 2; MAX= 17)
CODE IDENTIFYING ONE OF THE PARTIES IN THE TRANSACTION (SEE APPENDIX A)
ALSO SEE: IDENTIFICATION CODE QUALIFIER (66)

REFERENCE DESIGNATOR(S): C106 C203 D103 D504 E103 F103 F504 F0109 F0602 F0603 F0807 F0912 N104 PWK06 Q408 S104 S810 U103 U503

74 DECLARED VALUE
(SPEC: TYPE= N2 MIN= 2; MAX= 10)
MONETARY ASSIGNED-VALUE EXPRESSED IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED

REFERENCE DESIGNATOR(S): M103 N511

76 INVOICE NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 22)
IDENTIFYING NUMBER ASSIGNED BY ISSUER

REFERENCE DESIGNATOR(S): B302 B604 B1001 B1602 BM01 C003 C102 G0102 G1102 G1604 G4801 R209

77 INTERLINE STATION OR CITY NAME
(SPEC: TYPE= AN MIN= 2; MAX= 19)
STATION OR CITY AT WHICH CARRIERS INTERCHANGE SHIPMENTS

REFERENCE DESIGNATOR(S): E503 E603 R203 T304 W502 W504 W506 XE02

79 LADING DESCRIPTION
(SPEC: TYPE= AN MIN= 1; MAX= 25)
FREE-FORM FIELD DESCRIBING AN ITEM AS REQUIRED FOR RATING AND BILLING PURPOSES

REFERENCE DESIGNATOR(S): ED05 F0313 L502 M805 T202 TD105

80 LADING QUANTITY
(SPEC: TYPE= NO MIN= 1; MAX= 7)
NUMBER OF UNITS (PIECES) OF THE LADING COMMODITY
ALSO SEE: UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): G0507 L008 L311 M801 Q206 Q405 Q604 S805 TD102 W0306 W1405 X110

81 WEIGHT
(SPEC: TYPE= R MIN= 1; MAX= 8)
NUMERIC VALUE OF WEIGHT
ALSO SEE: WEIGHT QUALIFIER (187)
WEIGHT UNIT QUALIFIER (188)
UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): CTT03 F0401 F0404 G505 G0503 G2004 G3103 G3901 G7603 IS503 L004 L301 L803 M803 M1105 N703 Q207 Q402 Q601 TD107 TD305 W0206 W0209 W0302 W1210 W1213 W2004 W2106 W2109 W2507 W2510 W2802 W7602 X604

82 LENGTH
(SPEC: TYPE= R MIN= 1; MAX= 6)
LARGEST HORIZONTAL DIMENSION OF AN OBJECT MEASURED WHEN THE OBJECT IS IN THE UPRIGHT POSITION
ALSO SEE: MEASUREMENT UNIT QUALIFIER (90)
UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): G3909 L401 P0413

86 TOTAL EQUIPMENT
(SPEC: TYPE= NO MIN= 1; MAX= 3)
TOTAL PIECES OF EQUIPMENT.

REFERENCE DESIGNATOR(S): A408 B216

87 MARKS AND NUMBERS
(SPEC: TYPE= AN MIN= 1; MAX= 45)
MARKS AND NUMBERS USED TO IDENTIFY A SHIPMENT OR PARTS OF A SHIPMENT
ALSO SEE: MARKS AND NUMBERS QUALIFIER (88)

REFERENCE DESIGNATOR(S): L506 MAN02

88 MARKS AND NUMBERS QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE SPECIFYING THE APPLICATION OR SOURCE OF MARKS AND NUMBERS (87)

CODE	DEFINITION
L	LINE ITEM ONLY
PB	PREMARKED BY BUYER
S	ENTIRE SHIPMENT
SM	SHIPPER ASSIGNED
ZZ	MUTUALLY DEFINED

REFERENCE DESIGNATOR(S): L507 MAN01

90 MEASUREMENT UNIT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE SPECIFYING THE LINEAR DIMENSIONAL UNIT:

CODE	DEFINITION
C	CENTIMETERS
N	INCHES

REFERENCE DESIGNATOR(S): L404

91 MODE
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE SPECIFYING THE MODE OF TRANSPORTATION FOR THE SHIPMENT:

CODE	DEFINITION
AIR TRANSPORTATION-	
A	AIR
AE	AIR EXPRESS
INLAND WATERWAY-	
W	INLAND WATERWAY
INTERMODAL TRANSPORTATION-	
X	INTERMODAL
MOTOR TRANSPORTATION-	
B	BUS
E	EXPEDITED TRUCK
H	CUSTOMER PICK UP
I	COMMON IRREGULAR CARRIER
K	BACKHAUL
L	CONTRACT CARRIER
M	MOTOR (COMMON CARRIER)
P	PRIVATE CARRIER
T	OTHER MOTOR
OCEAN TRANSPORTATION-	
B	BARGE
N	PRIVATE VESSEL
O	CONTAINERIZED
Q	CONVENTIONAL
S	OTHER OCEAN
V	CUSTOMER PICKUP
RAIL TRANSPORTATION-	
G	PIGGYBACK
R	RAIL
OTHER-	
BU	BUS
C	CONSOLIDATION
CE	CUSTOMER PICKUP/CUSTOMER'S EXPENSE
D	PARCEL POST
F	HOLD FOR PICKUP
G	PIGGYBACK (TOFC/COFC)
K	BOOK POSTAL
LT	LTL TRUCKLOAD
NN	ZONED CARRIER (NOT LOADED TO FULL VISIBLE CAPACITY
NY	ZONED CARRIER (LOADED TO FULL VISIBLE CAPACITY
P	PIPELINE
PC	PRIVATE CARRIER
PL	PIPELINE MOTOR TRANSPORTATION
PT	POOLED TRUCK #
SR	SUPPLIER TRUCK #
SS	STEAMSHIP
T	BEST WAY (SHIPPERS OPTION)
TN	COMMON CARRIER (NOT LOADED TO FULL VISIBLE CAPACITY
TY	COMMON CARRIER (LOADED TO FULL VISIBLE CAPACITY)
U	UNITED PARCEL SERVICE (UPS)
VE	VESSEL #

REFERENCE DESIGNATOR(S): B005 CA001 G2701 G6602 M1002 R206 TD202 W0801 W2701 W6602 Y104 Y205

93 NAME
(SPEC: TYPE= AN MIN= 1; MAX= 35)
FREE-FORM ORGANIZATION NAME OR OFFICIAL TITLE OR RELATED INFORMATION

REFERENCE DESIGNATOR(S): G303 G6102 N102 N201 N202 PER02 S808 SCH05

96 NUMBER OF INCLUDED SEGMENTS
(SPEC: TYPE= NO MIN= 1; MAX= 6)
TOTAL NUMBER OF SEGMENTS INCLUDED IN A TRANSACTION SET INCLUDING ST AND SE SEGMENTS

REFERENCE DESIGNATOR(S): E604 SE01

97 NUMBER OF INCLUDED TRANSACTION SETS
(SPEC: TYPE= NO MIN= 1; MAX= 6)
TOTAL NUMBER OF TRANSACTION SETS INCLUDED IN THE FUNCTIONAL GROUP OR TRANSMISSION GROUP TERMINATED BY THE TRAILER SEGMENT IN WHICH THIS DATA ELEMENT IS USED.

REFERENCE DESIGNATOR(S): AK902 EG03 FG03 GE01

98 ORGANIZATION IDENTIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE IDENTIFYING THE TYPE OF PARTY BEING DEFINED

CODE	DEFINITION

AC AIR CARGO COMPANY
AD ADVISE (WRITTEN ORDERS)
AG AGENT
AK PARTY TO WHOM ACKNOWLEDGEMENT SHOULD BE SENT
AO ACCOUNT OF
BK BANK
BL PARTY TO RECEIVE BILL OF LADING
BN BENEFICIAL OWNER #
BO BROKER OR SALES OFFICE
BS BILL TO AND SHIP TO
BT PARTY TO BE BILLED FOR OTHER THAN FREIGHT (BILL TO)
BW BORROWER
BY BUYING PARTY (PURCHASER)
C1 IN CARE OF PARTY NO. 1
C2 IN CARE OF PARTY NO. 2
CA CARRIER
CB CUSTOMS BROKER
CC CLAIMANT
CL CONTAINER LOCATION
CM CUSTOMS
CN CONSIGNEE
CP PARTY TO RECEIVE CERT. OF COMPLIANCE
CR CONTAINER RETURN COMPANY
CS CONSOLIDATOR
CT CONSIGNEE TO BE SPECIFIED
CV CONSIGNEE OF VESSEL
DB DISTRIBUTOR BRANCH NUMBER
DC DESTINATION CARRIER
DE DEPOSITOR
DS DISTRIBUTOR NUMBER
EC EXCHANGER
EE LOCATION OF GOODS FOR CUSTOMS EXAMINATION BEFORE CLEARANCE
EM PARTY TO RECEIVE ELECTRONIC MEMO OF INVOICE
EI EXPORTER
FH PARTY TO RECEIVE LIMITATIONS OF HEAVY ELEMENTS REPORT
FR MESSAGE FROM
FW FORWARDER
IA INSTALLED AT
IC INTERMEDIATE CONSIGNEE
IK INTERMEDIATE CARRIER
II ISSUER OF INVOICE
IM IMPORTER
IN INSURER
IS PARTY TO RECEIVE CERTIFIED INSPECTION REPORT
IT INSTALLATION SITE
LN LENDER
LP LOADING PARTY
MA PARTY FOR WHOM ITEM IS ULTIMATELY INTENDED
MC MOTOR CARRIER
MF MANUFACTURER OF GOODS
MI PLANNING SCHEDULE/MATERIAL RELEASE ISSUER
MP MANUFACTURING PLANT #
N1 NOTIFY PARTY NO. 1
N2 NOTIFY PARTY NO. 2
OC ORIGIN CARRIER
OI OUTSIDE INSPECTION AGENCY
OT OUTSIDE TEST AGENCY
OO ORDER OF (SHIPPER'S ORDERS)-[TRANSPORTATION]
OV OWNER OF VESSEL
PA PARTY TO RECEIVE INSPECTION REPORT
PB PAYING BANK
PC PARTY TO RECEIVE CERT. OF CONFORMANCE (C.A.A.)
PD PURCHASER'S DEPARTMENT BUYER
PE PAYEE
PF PARTY TO RECEIVE FREIGHT BILL
PG PRIME CONTRACTOR
PH PAYER'S FINANCIAL INSTITUTION (CHECK, OR DRAFT OR WIRE), ODFI (ACH TRANSFERS)
PI PAYEE'S COMPANY NAME/ID (CHECK, DRAFT OR WIRE) RECEIVING COMPANY NAME/ID (ACH TRANSFERS)
PJ PARTY TO RECEIVE CORRESPONDENCE #
PM PARTY TO RECEIVE PAPER MEMO OF INVOICE
PN PARTY TO RECEIVE SHIPPING NOTICE
PR PAYER
PS PAYER'S COMPANY NAME/ID (CHECK, DRAFT OR WIRE) ORIGINATING COMPANY NAME/ID (ACH TRANSFERS)
PT PARTY TO RECEIVE TEST REPORT
PU PARTY AT PICK-UP LOCATION
RB RECEIVING BANK
RE PARTY TO RECEIVE COMMERCIAL INVOICE REMITTANCE
RH PAYEE'S FINANCIAL INSTITUTION (CHECK,DRAFT OR WIRE), RDFI (ACH TRANSFERS)
RL REPORTING LOCATION
RP RECEIVING POINT FOR CUSTOMER SAMPLES
RR RAILROAD
RS RECEIVING FACILITY SCHEDULER
SA SALVAGE CARRIER
SC STORE CLASS
SD SOLD TO AND SHIP TO #
SE SELLING PARTY
SF SHIP FROM
SG STORE GROUP NUMBER #
SH SHIPPER
SI SHIPPING SCHEDULE ISSUER
SM PARTY TO RECEIVE SHIPPING MANIFEST
SN STORE NUMBER
SO SOLD TO IF DIFFERENT THAN BILL TO
SP PARTY FILLING SHIPPERS ORDER
SS STEAMSHIP COMPANY
ST SHIP TO
SU SUPPLIER/MANUFACTURER
SW SEALING COMPANY #
TO MESSAGE TO
TR TERMINAL
TS PARTY TO RECEIVE CERTIFIED TEST RESULTS
TT TRANSFER TO
UC ULTIMATE CONSIGNEE
UP UNLOADING PARTY
VN VENDOR
WH WAREHOUSE
11 PARTY TO BE BILLED (AAR ACCOUNTING RULE 11)
ZZ MUTUALLY DEFINED

REFERENCE DESIGNATOR(S): CUR01 CUR04 D104 D501 F104 F501 M105 N101 PT02 PWK04 SCH04 U104 U504 Y105

100 CURRENCY
(SPEC: TYPE= ID MIN= 3; MAX= 3)
CODE (STANDARD ISO) FOR COUNTRY IN WHOSE CURRENCY THE CHARGES ARE SPECIFIED (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): C301 C303 CUR02 CUR05 F0106 Q608 XH01

102 OWNERSHIP CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING RELATIONSHIP OF EQUIPMENT TO CARRIER

CODE	DEFINITION
N	NOT CUSTOMER OWNED OR LEASED
R	SELLER OWNED, RETURNABLE
S	CUSTOMER OWNED OR LEASED
T	TRIP LEASED

REFERENCE DESIGNATOR(S): N710 TD307

103 PACKAGING CODE
(SPEC: TYPE= ID MIN= 5; MAX= 5)
CODE IDENTIFYING THE TYPE OF PACKAGING

PART 1, PACKAGING FORM (SEE APPENDIX B-B1.)
PART 2, PACKAGING MATERIAL (SEE APPENDIX B-B1.)

REFERENCE DESIGNATOR(S): CD111 F0314 L505 P0405 S806 TD101

107 PAYMENT METHOD
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING TYPE OF PAYMENT PROCEDURES:

CODE	DEFINITION
C	PAY BY CHECK
E	ELECTRONIC PAYMENT SYSTEM
F	FREIGHT PAYMENT BANK

ALSO SEE: CHARGE METHOD OF PAYMENT (16)
SHIPMENT METHOD OF PAYMENT (146)

REFERENCE DESIGNATOR(S): C206

108 PICK-UP OR DELIVERY CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE SPECIFYING THE CONDITION OR AREA OF PICK-UP:

CASE 1 - AIRPORT AND REGULAR SERVICE

CODE	DEFINITION
XX	SHIPMENT RECEIVED BY CARRIER AT AIRPORT
(##)	REGULAR SERVICE ## = ACI LETTER FOLLOWED BY SAME LETTER

CASE 2 - SPECIAL SERVICE
THE FIRST LETTER IS THE AIR CARGO, INC. (ACI) PICK-UP AREA CODE (SEE APPENDIX A); THE CODE FOR THE SECOND LETTER DENOTING THE TYPE OF SERVICE IS:

CODE	DEFINITION
H	SUNDAY AND HOLIDAY PICK-UP SERVICE
J	SATURDAY PICK-UP SERVICE
M	MULTIPLE SHIPMENT
O	OTHER
P	CUT FLOWERS
S	SPECIAL PICK-UP SERVICE
T	CITY TERMINAL SERVICE
U	CONTAINER SHIPMENT
V	HIGH VALUE SHIPMENT

REFERENCE DESIGNATOR(S): P101 P201

109 PICK-UP DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE THE CARRIER PICKS UP THE SHIPMENT FROM THE SHIPPER OR SUPPLIER
ALSO SEE: PICK-UP DATE QUALIFIER

REFERENCE DESIGNATOR(S): L602 P102

110 PICK-UP DATE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE DEFINING THE PICK-UP DATE:

CODE	DEFINITION
A	ACTUAL
R	REQUESTED

REFERENCE DESIGNATOR(S): P103

111 PICK-UP TIME
(SPEC: TYPE= TM MIN= 4; MAX= 4)
TIME (HHMM), EXPRESSED IN 24-HOUR CLOCK TIME, THAT THE CARRIER IS TO PICK UP THE SHIPMENT
(TIME RANGE: 0000 THROUGH 2359)

REFERENCE DESIGNATOR(S): P104

116 POSTAL CODE
(SPEC: TYPE= ID MIN= 5; MAX= 9)
CODE DEFINING INTERNATIONALPOSTAL ZONE EXCLUDING PUNCTUATION AND BLANKS (ZIP CODE FOR UNITED STATES)
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): D403 D703 E403 F403 F703 N403 S404 U403 U903

117 PREPAID AMOUNT
(SPEC: TYPE= N2 MIN= 1; MAX= 9)
MONEY PAID AT POINT OF ORIGIN (USUALLY BY SHIPPER) EXPRESSED IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED

REFERENCE DESIGNATOR(S): L106 L307

119 RATE BASIS NUMBER
(SPEC: TYPE= AN MIN= 2; MAX= 6)
THE (MILEAGE) FACTOR PUBLISHED FOR RATING PURPOSES IN THE APPROPRIATE TARIFF

REFERENCE DESIGNATOR(S): L711

120 RATE COMBINATION POINT
(SPEC: TYPE= ID MIN= 3; MAX= 9)
THE CODE DENOTING THE CONNECTING STATION FOR A JOINT RATE OBTAINED BY COMBINING TWO OR MORE PUBLISHED RATES WHICH ARE USED FOR THE CALCULATION OF TRANSPORTATION CHARGES: (SEE APPENDIX A)

MODE	CODE
AIR	IATA
MOTOR	SPLC
RAIL	FSAC

REFERENCE DESIGNATOR(S): L107

121 RATE CLASS
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE IDENTIFYING SPECIFICALLY DESIGNATED CLASS OF GOODS:

CODE	DEFINITION
A	ALTERNATE RATING
BHR	BACKHAUL RATE
C	SPECIFIC COMMODITY RATE
CTR	CONTRACT RATE
DMA	DEMURRAGE PERIOD 1
DMB	DEMURRAGE PERIOD 2
DMC	DEMURRAGE PERIOD 3
E	WEIGHT IN EXCESS OF PIVOT WEIGHT AND APPLICABLE RATE
ECR	ECONO RATE
F	OVERFLOW
H	CHARTER
L	CLASS RATE
M	MINIMUM
N	NORMAL UNDER 45 KG RATE
O	COLUMN COMMODITY RATE
Q	QUANTITY 45 KG OR OVER RATE
QUO	QUOTED RATE
R	CLASS RATE (LESS THAN NORMAL RATE)
S	CLASS RATE (MORE THAN NORMAL RATE)
U	PIVOT WEIGHT AND APPLICABLE PIVOT WEIGHT CHARGE
V	EXCESS RATE
X	IATA CONTAINER OR UNIT LOAD DEVICE (ULD)
Y	EXCEPTION RATING

NOTE: *FOR INTERNATIONAL AIR SHIPMENTS, SEE IATA RESOLUTION 600K.*

REFERENCE DESIGNATOR(S): C0115 C0118 C0121 L109 W0109 W0409

122 RATE/VALUE QUALIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE QUALIFYING HOW TO EXTEND CHARGES OR INTERPRET VALUE

CODE	DEFINITION
AV	AD VALOREM (PER CENT OF VALUE)
BF	PER 1,000 BOARD FEET
CF	PER 40 CUBIC FEET (MEASUREMENT TON)
CM	PER CUBIC METER
CT	CHARGE OR CREDIT BASED ON PERCENTAGE OF TOTAL
EI	EX PARTE INCREASE
FR	FLAT RATE
FV	LOADED TO FULL VISIBLE CAPACITY
GT	PER GROSS TON
KL	PER KILOLITRE
LB	PER POUND
LR	PER LITRE
LS	LUMP SUM
LT	PER LONG TON
ME	MULTIPLE EQUIPMENT
NI	NEGATIVE CHARGE
MM	PER METRIC TON (TONNE)
MN	MINIMUM
MX	MIXED SHIPMENT RULE
PA	PER CONTAINER
PB	PER BARGE
PC	PER CAR
PD	PER DAY
PE	PER 20 FOOT EQUIVALENT (TEU)
PF	PER CUBIC FOOT
PG	PER GALLON
PH	PER HUNDRED (OF BASIC UNIT)
PK	PER CORD
PL	PER LOAD
PM	PER MILE
PP	PER PIECE
PQ	PER PERIOD
PR	PER HOUR
PS	PER SHIPMENT
PT	PER NET TON
PU	PER UNIT
PV	PER VEHICLE
ST	PER SHORT TON
SY	SQUARE YARD
TB	PER 2 TRAILERS SAME DAY
TC	PER 3 TRAILERS SAME DAY
TD	PER 4 TRAILERS SAME DAY
TN	PER TRAIN RATE
TR	PER TRAILER (PER TRAIN)
VM	VOLUME
VS	VARIOUS

REFERENCE DESIGNATOR(S): C0116 C0119 C0122 G512 L103 L304 L807 M104 M512 P303 RA02 RA03 T206 T208 T603 T606 X601

123 NUMBER OF RECEIVED TRANSACTION SETS
(SPEC: TYPE= NO MIN= 1; MAX= 6)
NUMBER OF TRANSACTION SETS RECEIVED

REFERENCE DESIGNATOR(S): AK903 B503

124 APPLICATION RECEIVER'S CODE
(SPEC: TYPE= ID MIN= 2; MAX= 12)
CODE IDENTIFYING PARTY RECEIVING TRANSMISSION (SEE APPENDIX A)

VALID APPLICATION RECEIVER'S CODE CODES:
AGENT'S IATA NUMBER
AIR CARRIER'S IATA CODE
BANK'S FEDERAL RESERVE ROUTING CODE
BUYER'S DUNS NUMBER
CARRIER'S SCAC
CONSIGNEE'S DUNS NUMBER
CORPS OF ENGINEERS PORT AND DOCK CODE
CUSTOMER'S ID NUMBER
CUSTOMS IDENTIFICATION NUMBER
FORWARDER'S FMC NUMBER
INSURANCE COMPANY'S DUNS NUMBER
SELLER'S DUNS NUMBER
SHIPPER'S DUNS NUMBER
UCS CODE

REFERENCE DESIGNATOR(S): B604 G503

127 REFERENCE NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 30)
REFERENCE NUMBER OR IDENTIFICATION NUMBER AS DEFINED FOR A PARTICULAR TRANSACTION SET OR AS SPECIFIED BY THE REFERENCE NUMBER QUALIFIER
ALSO SEE: REFERENCE NUMBER QUALIFIER (128)

REFERENCE DESIGNATOR(S): A307 A405 B803 B1004

BA204 BA205 BA304 BA305
B6F03 BRA01 CAD08 CD129
CD131 D6104 F0102 F0205
F0207 F0302 F0304 F0306
F0802 F0803 F0902 F0903
F0904 F1002 F1003 F1102
F1103 F1201 F1202 G516
G1107 G1607 G3402 G7706
GA05 LH03 M505 M1007
N902 NA02 PT05 Q211
REF02 RMT02 TP07 W1102
W2103 W2404 W2506

128 REFERENCE NUMBER QUALIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE QUALIFYING THE REFERENCE NUMBER

CODE	DEFINITION	
AB	ACCEPTABLE SOURCE BUYER ID	
AC	AIR CARGO TRANSFER MANIFEST	
AD	ACCEPTABLE SOURCE DUNS NUMBER	
AF	AIRLINES FLIGHT IDENTIFICATION NUMBER	#
AG	AGENT'S SHIPMENT NUMBER	
AM	ADJUSTMENT MEMO (CHARGE BACK)	
AP	ACCOUNTS RECEIVABLE NUMBER	#
AR	ARRIVAL CODE	#
AS	ACCEPTABLE SOURCE SUPPLIER ID	
AW	AIR WAYBILL NUMBER	#
BA	BEGINNING METER READING (ACTUAL)	#
BC	BUYER'S CONTRACT NUMBER	
BD	BID NUMBER	
BE	BEGINNING METER READING (ESTIMATED)	#
BK	BROKER/AGENT ORDER NUMBER	
BL	GOVERNMENT BILL OF LADING	
BM	BILL OF LADING NUMBER	
BN	BOOKING NUMBER	
BR	BROKER OR SALES OFFICE NUMBER	
BT	BATCH NUMBER	
CA	COST ALLOCATION REFERENCE	
CB	COMBINED SHIPMENT	
CC	CONTRACT CO-OP NUMBER	
CD	CREDIT NOTE NUMBER	
CE	CLASS OF CONTRACT CODE	
CF	FLEET REFERENCE NUMBER	
CG	CONSIGNEE'S ORDER NUMBER	#
CK	CHECK NUMBER	
CL	SELLER'S CREDIT MEMO	
CM	CREDIT MEMO	
CN	CARRIER'S REFERENCE NUMBER (PRO/ INVOICE)	
CO	CUSTOMER ORDER NUMBER	
CP	CONDITION OF PURCHASE DOCUMENT NUMBER	
CR	CUSTOMER REFERENCE NUMBER	
CS	CONDITION OF SALE DOCUMENT NUMBER	
CT	CONTRACT NUMBER	
DB	BUYER'S DEBIT MEMO	
DE	DEPOSITOR NUMBER	
DK	DOCK NUMBER	
DL	DEBIT MEMO	
DM	DRAFT NUMBER	
DP	DEPARTMENT NUMBER	
DR	DOCK RECEIPT NUMBER	
DS	DEFENSE PRIORITIES ALLOCATION SYSTEM (DPAS)	
EA	ENDING METER READING (ACTUAL)	#
ED	EXPORT DECLARATION	
EE	ENDING METER READING (ESTIMATED)	#
EI	EMPLOYER'S IDENTIFICATION NUMBER	
EP	EXPORT PERMIT NUMBER	
EQ	EQUIPMENT NUMBER	
ER	CONTAINER OR EQUIPMENT RECEIPT NUMBER	
ES	EMPLOYER'S SOCIAL SECURITY NUMBER	
ET	EXCESS TRANSPORTATION AUTHORIZATION	
FI	FILE IDENTIFIER	
FN	FORWARDER'S/AGENT'S REFERENCE NUMBER	
FP	FORESTRY PERMIT NUMBER	#
FR	FREIGHT BILL NUMBER	
GB	GRAIN BLOCK NUMBER	
GC	GOVERNMENT CONTRACT NUMBER	
GP	GOVERNMENT PRIORITY NUMBER	
GR	GRAIN ORDER REFERENCE NUMBER	#
HC	HEAT CODE	
IB	IN BOND NUMBER	#
IC	INBOUND-TO PARTY	
IL	INTERNAL ORDER NUMBER	
IN	CONSIGNEE'S INVOICE NUMBER	
IO	INBOUND-TO OR OUTBOUND-FROM PARTY	
IS	INVOICE NUMBER SUFFIX	
IT	INTERNAL CUSTOMER NUMBER	
IV	SELLER'S INVOICE NUMBER	
JA	BEGINNING JOB SEQUENCE NUMBER	
JB	JOB(PROJECT) NUMBER	
JE	ENDING JOB SEQUENCE NUMBER	
JS	JOB SEQUENCE NUMBER	
LA	SHIPPING LABEL SERIAL NUMBER	
LB	LOCKBOX	
LF	ASSEMBLY LINE FEED LOCATION	#
LI	LINE ITEM IDENTIFIER(SELLER'S)	
LN	NON PICKUP LIMITED TARIFF NUMBER	#
LP	FOR PICKUP LIMITED FREIGHT TARIFF NUMBER	#
LS	BAR CODED LABEL SERIAL NO.	
LT	LOT NUMBER	
LW	LOCATION WITHIN EQUIPMENT	
MA	SHIP NOTICE/MANIFEST NUMBER	#
MB	MASTER BILL OF LADING	
MF	MANUFACTURER PART NUMBER	
MH	MANUFACTURING ORDER NUMBER	#
MK	MANIFEST KEY NUMBER	#
MN	MICR NUMBER	
NA	NORTH AMERICAN HAZARDOUS CLASSIFICATION NO.	
NS	MILITARY NATIONAL STOCK NUMBER	#
OB	OCEAN BILL OF LADING	
OC	SEA CONTAINER NUMBER	
OI	ORIGINAL INVOICE NUMBER	
OM	OCEAN MANIFEST	#
OP	ORIGINAL PURCHASE ORDER	
OS	OUTBOUND-FROM PARTY	
PA	PRICE AREA NUMBER	
PB	PAYER'S BANK ACCOUNT NUMBER	
PC	PRODUCTION CODE	
PD	PROMOTION/DEAL NUMBER	
PE	PLANT NUMBER	
PF	PRIME CONTRACTOR CONTRACT NO.	
PG	PRODUCT GROUP	
PH	PRIORITY RATING	
PI	PRICE LIST CHANGE OR ISSUE NUMBER	
PJ	PACKER NUMBER	#
PK	PACKING LIST NUMBER	
PL	PRICE LIST NUMBER	
PM	PART NUMBER	
PN	PERMIT NUMBER	
PO	PURCHASE ORDER NUMBER	
PP	PURCHASE ORDER REVISION NO.	
PR	PRICE QUOTE NUMBER	
PS	PURCHASE ORDER NUMBER SUFFIX	
PT	PURCHASE OPTION AGREEMENT	
PY	PAYEE'S BANK ACCOUNT NUMBER	
PZ	PRODUCT CHANGE NOTICE NUMBER	#
RC	RAIL ROUTING CODE	

RE	RELEASE NUMBER	
RF	EXPORT REFERENCE NUMBER	
RL	RESERVE ASSEMBLY LINE FEED LOCATION	#
RN	RUN NUMBER	
RP	REPETITIVE PATTERN CODE (RPC)	
RR	PAYER'S BANK ROUTING AND TRANSIT NUMBER	
RT	ROUTE ADMINISTRATIVE MESSAGE TO	
RW	AAR RWC (ORIGIN CARRIER, SPLC, AND RWC NUMBER)	
SA	SALESPERSON	
SC	SHIPPER CAR ORDER NUMBER	
SE	SERIAL NUMBER	
SF	SHIP FROM	
SI	SHIPPER'S IDENTIFYING NUMBER FOR SHIPMENT (SID)	
SL	SALES/TERRITORY CODE	
SN	SEAL NUMBER	
SO	SHIPPER'S ORDER (INVOICE NUMBER)	
SQ	CONTAINER SEQUENCE NUMBER	
SR	SALES RESPONSIBILITY	
ST	STORE NUMBER	
SV	SERVICE CHARGE NUMBER	
TB	TRUCKER'S BILL OF LADING	
TI	TIR - NUMBER	#
TM	TRAVEL MANIFEST (ACI OR OTR)	
TN	TRANSACTION REFERENCE NUMBER	
TO	TERMINAL OPERATOR NUMBER	#
TR	GOVERNMENT TRANSPORTATION REQUEST	
TX	TAX EXEMPT NUMBER	
UB	UNACCEPTABLE SOURCE BUYER ID	
UD	UNACCEPTABLE SOURCE DUNS NUMBER	
UN	UNITED NATIONS HAZARDOUS CLASSIFICATION NO.	
US	UNACCEPTABLE SOURCE SUPPLIER ID	
UT	UNIT TRAIN	
VA	VESSEL AGENT NUMBER	#
VC	VENDOR CONTRACT NUMBER	
VM	VESSEL NAME	
VN	VENDOR ORDER NUMBER	
VP	VENDOR PRODUCT NUMBER	
VS	VENDOR ORDER NUMBER SUFFIX	
VT	MOTOR VEHICLE ID NUMBER	
VV	VOUCHER	
WM	WEIGHT AGREEMENT NUMBER	
WR	WAREHOUSE RECEIPT NUMBER	
WY	RAIL WAYBILL NUMBER	
XC	CARGO CONTROL NUMBER	
XP	PREVIOUS CARGO CONTROL NUMBER	
ZA	SUPPLIER	#
ZB	ULTIMATE CONSIGNEE	#
ZC	CONNECTING CARRIER	#
ZZ	MUTUALLY DEFINED	

ALSO SEE: REFERENCE NUMBER (127)

REFERENCE DESIGNATOR(S): A306 A404 B802 B1003 B6F02 CA007 CD128 CD130 F0204 F0206 F0301 F0303 F0305 G515 G1106 G1606 G3401 G7705 GA04 LH04 N901 NA01 Q210 REF01 RMT01 TP06 W1101 W2102 W2403 W2505

129 REFERENCED PATTERN IDENTIFIER
(SPEC: TYPE= AN MIN= 1; MAX= 13)
IDENTIFICATION OF A REPETITIVE PATTERN THAT IS TO BE USED AS A BASIS FOR CREATING A SHIPMENT RECORD OR A NEW PATTERN; OR IDENTIFICATION OF A PATTERN REQUIRING CHANGE OR DELETION

ALSO SEE: PATTERN.FUNCTION CODE (105)

REFERENCE DESIGNATOR(S): B205 B905 XE01

133 ROUTING SEQUENCE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE DESCRIBING THE RELATIONSHIP OF A CARRIER TO A SPECIFIC SHIPMENT MOVEMENT

CODE	DEFINITION
A	ORIGIN CARRIER, AGENT'S ROUTING (RAIL)
B	ORIGIN/DELIVERY CARRIER (ANY MODE)
D	DELY (DELIVERY SWITCH CARRIER)
I	ORIGIN SWITCH CARRIER
O	ORIGIN CARRIER (AIR,MOTOR,OR OCEAN)
R	ORIGIN CARRIER, RULE 11 SHIPMENT
S	ORIGIN CARRIER, SHIPPER'S ROUTING (RAIL)
V	INTERMEDIATE SWITCH CARRIER AT ORIGIN
1	1ST CARRIER AFTER ORIGIN CARRIER
2	2ND CARRIER AFTER ORIGIN CARRIER
3	3RD CARRIER AFTER ORIGIN CARRIER
4	4TH CARRIER AFTER ORIGIN CARRIER
5	5TH CARRIER AFTER ORIGIN CARRIER
6	6TH CARRIER AFTER ORIGIN CARRIER
7	7TH CARRIER AFTER ORIGIN CARRIER
8	8TH CARRIER AFTER ORIGIN CARRIER
9	9TH CARRIER AFTER ORIGIN CARRIER

REFERENCE DESIGNATOR(S): E502 R202 R601 T303 TD201

140 SCAC
(SPEC: TYPE= ID MIN= 2; MAX= 4)
CODE (STANDARD CARRIER ALPHA) (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): B311 B1005 BA201 BA301 CA004 CD127 D801 DK01 E501 E605 F0104 F0805 F0907 FK01 G2704 GY07 JL01 M504 M1001 M1112 M1113 M1207 M1301 N810 PT04 R101 R102 R201 R904 S105 SA03 T302 TD203 V105 W402 W501 W503 W505 W0802 W2702 XD06 XE03 XF06 Y103 Y207 Y302 Y407 ZB05 ZC08 ZD08

142 APPLICATION SENDER'S CODE
(SPEC: TYPE= ID MIN= 2; MAX= 12)
CODE IDENTIFYING PARTY SENDING TRANSMISSION (SEE APPENDIX A)

VALID APPLICATION SENDER'S CODE CODES:
AGENT'S IATA NUMBER
AIR CARRIER'S IATA CODE
BANK'S FEDERAL RESERVE ROUTING CODE
BUYER'S DUNS NUMBER
CARRIER'S SCAC
CONSIGNEE'S DUNS NUMBER
CORPS OF ENGINEERS PORT AND DOCK CODE
CUSTOMS IDENTIFICATION NUMBER
CUSTOMER'S ID NUMBER
FORWARDER'S FMC NUMBER
INSURANCE COMPANY'S DUNS NUMBER

SELLER'S DUNS NUMBER
SHIPPER'S DUNS NUMBER
UCS CODE
(THE UCS CODE IS THE ONLY CODE USED FOR UCS TRANSMISSIONS. IT INCLUDES THE AREA CODE AND TELEPHONE NUMBER OF A MODEM. IT DOES NOT INCLUDE PUNCTUATION, BLANKS OR ACCESS CODE.)

REFERENCE DESIGNATOR(S): BG03 GS02

143 TRANSACTION SET IDENTIFIER
(SPEC: TYPE= ID MIN= 3; MAX= 3)
CODE UNIQUELY IDENTIFYING A TRANSACTION SET (SEE APPENDIX C.)

REFERENCE DESIGNATOR(S): AK201 B001 B101 B201 B301 B401 B501 B601 B701 B801 B901 BA01 BGF01 BT101 ST01 ZC01 ZD01

145 SHIPMENT IDENTIFICATION NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 12)
IDENTIFICATION NUMBER ASSIGNED TO THE SHIPMENT BY THE SHIPPER (NUMBER DOES NOT CONTAIN BLANK OR PUNCTUATION CHARACTERS)
ALSO SEE: REFERENCE NUMBER QUALIFIER (128)

REFERENCE DESIGNATOR(S): B102 B206 B303 B602 B1002 BW02 C002 C101 G0203 G0603 M502 M601 Q401 W0604 W1705 ZC02 ZD02

146 SHIPMENT METHOD OF PAYMENT
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE IDENTIFYING PAYMENT TERMS FOR TRANSPORTATION CHARGES:

CODE	DEFINITION
CA	ADVANCE COLLECT
CC	COLLECT
CF	COLLECT, FREIGHT CREDITED BACK TO CUSTOMER
DF	DEFINED BY BUYER AND SELLER
FO	FOB PORT OF CALL
IC	INFORMATION COPY, NO PAYMENT DUE
MX	MIXED
NC	SERVICE FREIGHT, NO CHARGE
NS	NOT SPECIFIED
PA	ADVANCE PREPAID
PB	CUSTOMER PICK-UP/BACKHAUL
PC	PREPAID BUT CHARGED TO CUSTOMER
PO	PREPAID ONLY
PP	PREPAID (BY SELLER)
PU	PICKUP
RC	RETURN CONTAINER FREIGHT PAID BY CUSTOMER
RF	RETURN CONTAINER FREIGHT FREE
RS	RETURN CONTAINER FREIGHT PAID BY SUPPLIER
TP	THIRD PARTY PAY
WC	WEIGHT CONDITION
ZZ	MUTUALLY DEFINED

NOTE: FOR AIR SHIPMENTS, USE CODE IN IATA RULE 650.

REFERENCE DESIGNATOR(S): B208 B304 B908 FOB01 G2501 G6601 Q302 Q606 W2704 W6601

147 SHIPMENT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE DEFINING RELATIONSHIP OF THIS SHIPMENT WITH RESPECT TO OTHER SHIPMENTS GIVEN TO THE CARRIER AT THE SAME TIME:

CODE	DEFINITION
A	SUB FOR ASSEMBLY
B	BILL OF LADING FOR INDIVIDUAL SHIPMENT
C	CONSOLIDATED SHIPMENT
D	SUB FOR DISTRIBUTION
E	EMPTY EQUIPMENT BILLING (NON-REVENUE)
F	STOP-OFF SHIPMENT
G	SWITCH WAYBILL
H	COMPANY BUSINESS (NON-REVENUE)
I	INTERMODAL CONVEYING FLAT CAR SHIPMENT
J	CHARITY LOAD (NON-REVENUE)
K	FREE ASTRAY (NON-REVENUE)
L	SINGLE LOAD (BLIND MEMO) MEMO--INCOMPLETE DOCUMENTATION
M	MASTER BILL OF LADING FOR ASSEMBLY, DISTRIBUTION AND VOLUME SHIPMENT
N	MULTIPLE LOADS (BLIND MEMO) MEMO--INCOMPLETE DOCUMENTATION
O	MEMO BILL (NOT USED FOR RAIL)
P	PTF BILL OF LADING
Q	BILLING CODE
R	SUPPLEMENTAL BILLING
S	SUBMASTER BILL OF LADING FOR VOLUME SHIPMENT
T	FREIGHT CLAIM RULE 93-B (FREE RETURN)
V	VOID BILL
W	REVENUE EMPTY
X	EMPTY SWITCH WAYBILL
Y	ADVANCE/PREPAID ONLY WAYBILL
Z	COMMERCIAL ZONE PICK-UP

REFERENCE DESIGNATOR(S): B210 M508 Q409

150 SPECIAL CHARGE CODE
(SPEC: TYPE= ID MIN= 3; MAX= 3)
CODE IDENTIFYING TYPE OF SPECIAL CHARGE (SEE APPENDIX B-B2.)

ALSO SEE: SPECIAL CHARGE DESCRIPTION (276)

REFERENCE DESIGNATOR(S): G6405 L108 L308 L809 L901 P301 XG06 XH03

151 AUTHORITY
(SPEC: TYPE= AN MIN= 1; MAX= 20)
NAME OR CODE OF AUTHORITY FOR AUTHORIZING ACTION OR RESERVATION

REFERENCE DESIGNATOR(S): XA04 Y602

152 SPECIAL HANDLING CODE
(SPEC: TYPE= ID MIN= 2; MAX= 3)
CODE SPECIFYING SPECIAL TRANSPORTATION HANDLING INSTRUCTIONS
(SEE APPENDIX B-B3.)

REFERENCE DESIGNATOR(S): H301 TD401 W601 W602
W603 W604 W0609 W2709

153 SPECIAL HANDLING DESCRIPTION
(SPEC: TYPE= AN MIN= 2; MAX= 30)
FREE-FORM ADDITIONAL DESCRIPTION OF SPECIAL HANDLING INSTRUCTIONS TO APPEAR ON PRINTED BILL IF SPECIAL HANDLING CODE IS NOT ADEQUATE

REFERENCE DESIGNATOR(S): H302

154 SPLC
(SPEC: TYPE= ID MIN= 6; MAX= 9)
CODE (STANDARD POINT LOCATION) DEFINED BY NMFTA POINT DEVELOPMENT GROUP AS THE OFFICIAL CODE ASSIGNED TO A CITY OR POINT (FOR RATEMAKING PURPOSES) WITHIN A CITY (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): B203 B903 BA02 BA06
D405 D908 E504 E604
E703 F405 F908 NB03
R204 R302 R303 S902
T107 T305 U405 U905
V201 V203 XB06 Y305
Y404

156 STATE OR PROVINCE CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE (STANDARD STATE/PROVINCE) DEFINED BY APPROPRIATE GOVERNMENTAL AGENCIES
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): AC07 AC09 D402 D702
D903 D907 E402 E702
F402 F702 F903 F907
G402 GY04 H503 L716
N402 NB09 NB02 Q506
Q517 S403 S904 T106
U402 U902 V906 W305
W405 XA03 XB05 XE06
Y107

160 STATUS REPORT REQUEST CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE USED BY THE SHIPPER TO SPECIFY THAT AN AUTOMATIC STATUS REPORT IS REQUESTED WHEN THE SHIPMENT IS DELIVERED:

CODE	DEFINITION
N	NOT REQUIRED
R	AUTOMATIC STATUS REPORT REQUESTED

REFERENCE DESIGNATOR(S): B209

162 STOP-OFF WEIGHT
(SPEC: TYPE= NO MIN= 3; MAX= 8)
WEIGHT OF THE SHIPMENT LOADED OR UNLOADED AT THE STOP-OFF SITE

REFERENCE DESIGNATOR(S): S803

163 STOP REASON CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE SPECIFYING THE REASON FOR THE STOP:

CODE	DEFINITION
CL	COMPLETE LOAD
CN	CONSOLIDATE
CU	COMPLETE UNLOAD
HT	HEAT THE SHIPMENT
PL	PART LOAD
PU	PART UNLOAD
TL	TRANSLOAD
WL	WEIGH LOADED

REFERENCE DESIGNATOR(S): S802 S906

164 STOP REASON DESCRIPTION
(SPEC: TYPE= AN MIN= 2; MAX= 20)
STOP-OFF REASON DESCRIPTION IN FREE-FORM.
ALSO SEE: STOP REASON CODE (163)

REFERENCE DESIGNATOR(S): S807

165 STOP SEQUENCE NUMBER
(SPEC: TYPE= NO MIN= 1; MAX= 2)
IDENTIFYING NUMBER FOR THE SPECIFIC STOP AND THE SEQUENCE IN WHICH THE STOP IS TO BE PERFORMED PRIOR TO MOVEMENT TO FINAL DESTINATION

REFERENCE DESIGNATOR(S): S101 S201 S401 S801
S901

166 ADDRESS INFORMATION
(SPEC: TYPE= AN MIN= 1; MAX= 35)
FREE-FORM FIELD FOR ADDRESS INFORMATION

REFERENCE DESIGNATOR(S): N301 N302

167 TARE WEIGHT
(SPEC: TYPE= NO MIN= 3; MAX= 8)
WEIGHT OF THE EQUIPMENT
ALSO SEE: WEIGHT UNIT QUALIFIER (188)

REFERENCE DESIGNATOR(S): G507 IC03 L201 N705

168 TARIFF AGENCY CODE
(SPEC: TYPE= ID MIN= 1; MAX= 4)
CODE DEFINING THE TARIFF BUREAU OR TARIFF PUBLISHING AGENT THAT GOVERNS THE RATES APPLIED TO THIS SHIPMENT (SEE APPENDIX A)

REFERENCE DESIGNATOR(S): GH03 GY08 L702 PR05
TP01 TX02

169 TARIFF ITEM NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 10)
NUMBER ASSIGNED IN THE TARIFF TO SPECIFIC RATE OR GROUP OF RATES THAT APPLIES TO ONE OR MORE ITEMS IN THE SHIPMENT

REFERENCE DESIGNATOR(S): GH06 GY11 L705 PR08
TP05 TX04

170 TARIFF ITEM PART
(SPEC: TYPE= NO MIN= 1; MAX= 2)
NUMBER ASSIGNED TO SUBSECTION OF A SPECIFIC TARIFF ITEM (ARBITRARY)

REFERENCE DESIGNATOR(S): L706

171 TARIFF NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 7)
STANDARD TARIFF NUMBER FOR THE TARIFF WHICH GOVERNS THE RATES APPLIED TO THE COMMODITY ITEM(S)

REFERENCE DESIGNATOR(S): GH04 GY09 L703 PR06 TP02 TX03

172 TARIFF SECTION
(SPEC: TYPE= NO MIN= 1; MAX= 2)
NUMBER USED AS AN EXTENSION OF THE BASIC TARIFF NUMBER TO IDENTIFY THE RATES PUBLISHED WITHIN SPECIFIC SECTIONS OF THE TARIFF

REFERENCE DESIGNATOR(S): GH05 GY10 L704 PR07 TP04

173 TARIFF SUPPLEMENT IDENTIFIER
(SPEC: TYPE= AN MIN= 1; MAX= 4)
IDENTIFIER FOR THE TARIFF SUPPLEMENT WHICH CONTAINS THE RATE USED

REFERENCE DESIGNATOR(S): GH07 L708

177 TOFC/INTERMODAL CODE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE IDENTIFYING THE TOFC PLAN:

PLAN CODE	PLAN NO.	UNIT OWNER	CAR OWNER	SERVICE PROV. BY RAILROAD	DETERMINATION OF CHARGES
10	1	TRUCKER	RR	LOA & UNL	AGREED BETWEEN RR AND TRUCKER
12	12	PATRON	RR	SYSTEM TOFC SERVICE DESIGNATION FOR SHIPMENTS MOVING UNDER OUTER CONTAINER RULES	OUTER CONTAIN. TARIFFS
20	2	RR	RR	PU, LOA, UNL & DEL	TRUCK COMPETITIVE RATES
22	2.25	RR	RR	PU OR DEL	SPECIAL RR MOD OF PLAN 2 CHAR
25	2.5	RR	RR	LOA & UNL	SPECIAL RR MOD OF PLAN 2 CHAR
30	3	PATRON	RR	LOA & UNL	RAIL RATES
40	4	PATRON	RR	CAR MOVE ONLY PATRON PROVIDES OWN LOA & UNL SERVICE OR PAYS CARRIER FOR THIS SERVICE	PER CAR
50	5	RR OR TRUCKER	RR	PU, LOA, UNL & DEL	JOINT TRUCK/RA RATES
60	6	RR	RR	SUBSTITUTE SERVICE LTL ONLY	RAIL RATES
70	7	RR	RR	SUBSTITUTE OF TRAILERS FOR RAIL CARS WHEN CARRIER HAS SURPLUS TRAILERS & BOX CARS ARE SCARCE - PU, LOA, UNL & DEL	RAIL RATES
80	8	PATRON OR RR	RR	TOFC SERVICE DESIGNATED FOR GOVERNMENT MAIL (VAN OR CONTAINER)	CONTRACT WITH GOVERNMENT
83	83	PATRON	RR	LAND BRIDGE RAMP-TO-RAMP SERVICE BY RR	JOINT RAIL/ WATER RATE
84	84	PATRON	RR	MINI BRIDGE RAMP-TO-RAMP SERVICE BY RR	JOINT RAIL/ WATER RATE
00		PLAN UNKNOWN			

REFERENCE DESIGNATOR(S): R205 R903 W207 Y206

183 VOLUME
(SPEC: TYPE= R MIN= 1; MAX= 8)
VALUE OF VOLUMETRIC MEASURE
ALSO SEE: VOLUME UNIT QUALIFIER (184)
UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): CTT05 F0407 F0409 G0505 G2006 G3105 G3904 G7605 IS505 L006 L309 M1107 N708 W0304 W2008 W7604

184 VOLUME UNIT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE SPECIFYING THE VOLUME UNIT:

CODE	DEFINITION
B	BARGE
C	CUBIC CENTIMETERS
D	CORD
E	CUBIC FEET
F	100 BOARD FEET
G	GALLONS
H	HUNDREDS OF MEASUREMENT TONS
L	LOAD
M	CUBIC DECIMETERS
N	CUBIC INCHES
R	CAR
S	MEASUREMENT TON
T	CONTAINER
V	LITRE
X	CUBIC METERS

REFERENCE DESIGNATOR(S): F0408 F0410 L007 L710 M1108 N709

187 WEIGHT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE DEFINING THE TYPE OF WEIGHT

CODE	DEFINITION
A	CONSOLIDATED WEIGHT
B	BILLED WEIGHT
C	ACTUAL NET REPEATED FOR COMBINATION
D	DESTINATION WEIGHT AGREEMENT
E	ESTIMATED NET WEIGHT
F	DEFICIT WEIGHT

G	GROSS WEIGHT
H	WEIGHT PER 100 FEET
I	WEIGHT PER 1000 FEET
J	LIGHT WEIGHT
K	CLEANOUT
L	LEGAL WEIGHT
M	MINIMUM WEIGHT (FOR RATE)
N	ACTUAL NET WEIGHT
O	EXCESS WEIGHT OVER MAXIMUM
P	WEIGHT PER 100 UNITS
Q	WEIGHT PER 1000 UNITS
R	PER UNIT DUNNAGE
S	STATE WEIGHT
T	TARE WEIGHT
U	WEIGHT PER UNIT
V	NON TRANSIT WEIGHT (ON TRANSIT BILLS ONLY)
W	TRANSIT WEIGHT (ON TRANSIT BILLS ONLY)
X	MAXIMUM WEIGHT (FOR RATE)
Y	THEORETICAL WEIGHT
Z	MUTUALLY DEFINED

REFERENCE DESIGNATOR(S): F0403 F0406 G506 GA03 L005 L302 L805 N704 P0406 Q208 Q404 Q603 S804 T204 TD106 TD304 W0207 W0210 W1211 W1214 W2005 W2107 W2110 W2508 W2511 W2803 X603

188 WEIGHT UNIT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE SPECIFYING THE WEIGHT UNIT:

CODE	DEFINITION
E	METRIC TON
K	KILOGRAMS
L	POUNDS
M	MEASUREMENT TON
S	SHORT TON
T	LONG TON

REFERENCE DESIGNATOR(S): B207 B305 B805 BM03 F0402 F0405 L011 L202 L312 L804 M804 M1106 N717 Q403 Q602 W0208 W0211 W1212 W1215 W2006 W2108 W2111 W2509 W2512 W2804

189 WIDTH
(SPEC: TYPE= R MIN= 1; MAX= 8)
SHORTEST MEASUREMENT OF THE TWO HORIZONTAL DIMENSIONS MEASURED WITH THE OBJECT IN THE UPRIGHT POSITION
ALSO SEE: MEASUREMENT UNIT QUALIFIER (90)
UNIT OF MEASUREMENT CODE (355)

REFERENCE DESIGNATOR(S): G3908 L402 P0414

191 ADVANCES
(SPEC: TYPE= N2 MIN= 1; MAX= 9)
INCIDENTAL CHARGES OCCURRING DURING TRANSPORTATION WHICH ARE NOT GENERALLY CONSIDERED TO BE FREIGHT CHARGES (EXAMPLES - STOP CHARGES, DIVERSION AND RECONSIGNMENT, ICING) EXPRESSED IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED

REFERENCE DESIGNATOR(S): L105 L306

193 NET AMOUNT DUE
(SPEC: TYPE= N2 MIN= 1; MAX= 9)
TOTAL CHARGES TO BE PAID BY THE RECEIVER OF THIS TRANSACTION SET EXPRESSED IN THE STANDARD MONETARY DENOMINATION FOR THE CURRENCY SPECIFIED

REFERENCE DESIGNATOR(S): B307 BM03 Q607

195 CAPACITY LOAD CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE SPECIFYING TYPE OF CAPACITY LOAD:

CODE	DEFINITION
C	FULL CUBIC CAPACITY
F	FULL CAPACITY
G	GALLONAGE CAPACITY
M	MARKED CAPACITY
V	FULL VISIBLE CAPACITY

REFERENCE DESIGNATOR(S): B213

196 CAR TYPE
(SPEC: TYPE= ID MIN= 2; MAX= 4)
CODE FOR THE MECHANICAL DESIGNATION AS DEFINED IN OFFICIAL RAILWAY EQUIPMENT REGISTER
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): N504

198 CARRIERS LINE ITEM REFERENCE NUMBER
(SPEC: TYPE= AN MIN= 3; MAX= 12)
NUMBER USED BY A CARRIER AS AN INTERNAL CONTROL NUMBER FOR A LINE ITEM (NOT THE SAME AS INVOICE NUMBER OR PRO NUMBER)

ALSO SEE: INVOICE NUMBER (76)

REFERENCE DESIGNATOR(S): L601

199 CONFIDENTIAL BILLING REQUEST CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE USED BY SHIPPER TO REQUEST THAT THE CARRIER INHIBIT ORIGIN IDENTIFICATION INFORMATION FROM THE INVOICE TRANSACTION SETS AND/OR RATE AND CHARGES FROM WAYBILL DOCUMENTS AND TRANSACTION SETS WHEN SHIPMENT MOVES UNDER CONFIDENTIAL CONTRACT RATES:

CODE	DEFINITION
C	CONFIDENTIAL BILLING
M	CONFIDENTIAL BILLING AND NO RATE OR CHARGES TO BE SHOWN
N	NOT APPLICABLE
R	NO RATE OR CHARGES TO BE SHOWN

REFERENCE DESIGNATOR(S): B214

202 CORRECTION INDICATOR
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE USED TO INDICATE THAT THE TRANSACTION SET CONTAINS INFORMATION WHICH CORRECTS A PREVIOUS BILLING

CODE	DEFINITION
AD	ADJUSTMENT OF PREVIOUS FREIGHT BILL CHARGES
AI	SUPPLY ADDITIONAL INFORMATION
AR	ADDING REVENUE
BE	BILLING ERROR
BO	BAD ORDER SETBACK/BILL CANCELLED
CA	CANCELLED BILL
CO	CORRECTION
CS	CONSOLIDATION
DV	DIVERSION/RECONSIGNMENT
RB	REBILLING (IGNORE PREVIOUS BILL)
RC	REVENUE CORRECTION
RE	REASSIGNMENT/TRANSFER
TL	TRANSLOAD

REFERENCE DESIGNATOR(S): B308 BM04 ZC07 ZD07

203 CUBIC CAPACITY
(SPEC: TYPE= NO MIN= 2; MAX= 4)
CAPACITY OF CAR ORDERED (CUBIC FEET UNLESS OTHERWISE SPECIFIED)
ALSO SEE: METRIC QUALIFIER (216)

REFERENCE DESIGNATOR(S): N503

205 DUNNAGE
(SPEC: TYPE= NO MIN= 1; MAX= 6)
WEIGHT OF MATERIAL USED TO PROTECT LADING (EVEN BRACINGS, FALSE FLOORS, ETC.)

REFERENCE DESIGNATOR(S): N707

206 EQUIPMENT INITIAL
(SPEC: TYPE= AN MIN= 1; MAX= 4)
PREFIX OR ALPHA PART OF AN EQUIPMENT UNIT'S IDENTIFYING NUMBER

REFERENCE DESIGNATOR(S): A304 A402 B407 CAD02 CD101 D6101 E601 ED01 F0202 G501 G0701 G2702 IC01 M401 N701 N804 NA03 P105 Q508 Q519 T306 TD302 VID02 W201 W211 W0803 W2706 XC01 ZB01 ZC03 ZD03

207 EQUIPMENT NUMBER
(SPEC: TYPE= AN MIN= 1; MAX= 7)
SEQUENCING OR SERIAL PART OF AN EQUIPMENT UNIT'S IDENTIFYING NUMBER (PURE NUMERIC FORM FOR EQUIPMENT NUMBER IS PREFERRED)

REFERENCE DESIGNATOR(S): A305 A403 B408 CAD03 CD102 D6102 E602 ED02 F0203 G502 G0702 G2703 IC02 M402 N702 N805 NA04 P106 Q509 Q520 T307 TD303 VID03 W202 W212 W0804 W2707 XC02 ZB02 ZC04 ZD04

208 HAZARDOUS MATERIAL CODE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH QUALIFIES THE HAZARDOUS MATERIAL CLASS CODE (209)

CODE	DEFINITION
4	46 LEVEL DOT CODE
6	AIRLINE TARIFF 6D
9	TITLE 49 CODE OF FEDERAL REGULATION (CFR)
A	ICAO CODE
E	ENDORSEMENT
I	IMO CODE (INTERGOVERNMENTAL MARITIME CONSULTATIVE ORGANIZATION)
R	BOE 6000-A (RAIL)
U	UNITED NATIONS

REFERENCE DESIGNATOR(S): CD106 H103 TD402

209 HAZARDOUS MATERIAL CLASS CODE
(SPEC: TYPE= ID MIN= 2; MAX= 4)
CODE SPECIFYING THE KIND OF HAZARD FOR A MATERIAL (SEE APPENDIX A)
ALSO SEE: HAZARDOUS MATERIAL CODE QUALIFIER 208

REFERENCE DESIGNATOR(S): CD107 H102 TD403

211 LADING QUANTITY QUALIFIER
(SPEC: TYPE= ID MIN= 3; MAX= 3)
CODE FOR THE PACKAGING FORM OF THE LADING QUANTITY (THE CODES ARE IDENTICAL WITH THE THREE CHARACTER CODE LIST FOR PART 1 OF DATA ELEMENT 103.)
ALSO SEE: PACKAGING CODE (103)
(APPENDIX B-B1)

CODE	DEFINITION
VEH	VEHICLES

REFERENCE DESIGNATOR(S): L009 M802 Q406 Q605

213 LADING LINE ITEM NUMBER
(SPEC: TYPE= NO MIN= 1; MAX= 3)
SEQUENTIAL LINE NUMBER FOR A LADING ITEM

REFERENCE DESIGNATOR(S): C801 L001 L101 L501 L701 LH01 LX01 M501

216 METRIC QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE USED TO INDICATE THAT MEASUREMENTS ARE GIVEN IN METRIC UNITS:

CODE	DEFINITION
M	METRIC UNITS

REFERENCE DESIGNATOR(S): N505

219 POSITION
(SPEC: TYPE= AN MIN= 1; MAX= 3)
RELATIVE POSITION OF SHIPMENT IN CAR, TRAILER OR CONTAINER (MUTUALLY DEFINED CODE)

REFERENCE DESIGNATOR(S): M806 N714

220 BILLED/RATED-AS QUANTITY
(SPEC: TYPE= NO MIN= 1; MAX= 11)
BASIS FOR RATING (MILES, VALUE, VOLUME, ETC.)
(NOTE THAT WEIGHT MAY BE DEFINED BY EITHER DATA ELEMENT 220 OR 81.)

ALSO SEE: LADING QUANTITY (80)
RATED-AS QUALIFIER (221)
WEIGHT (81)
WEIGHT QUALIFIER (187)
WEIGHT UNIT QUALIFIER (188)

REFERENCE DESIGNATOR(S): L002 L801

221 BILLED/RATED-AS QUANTITY QUALIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE SPECIFYING THE TYPE OF QUANTITY OR VALUE THE RATE OR ITEM PRICING IS BASED:

DISTANCE

CODE	DEFINITION
DK	KILOMETERS
DM	MILES

NUMBER OF UNITS

CODE	DEFINITION
NB	BARGE
NC	CAR
NL	LOAD
NN	TRAIN
NP	PIECE
NR	CONTAINER
NT	TRAILER
NV	VEHICLE

TIME

CODE	DEFINITION
TD	DAYS
TH	HOURS

UNIT OF SALE

CODE	DEFINITION
BX	BOX
CC	CUBIC CENTIMETER
CF	CUBIC FOOT
CM	CENTIMETER
EA	EACH
FR	FLAT RATE
FT	FOOT
GC	100 GALLONS
GL	GALLON
KG	KILOGRAM
LB	POUND
LC	100 POUNDS
LH	100 LITERS
LR	LITER
MT	MEASUREMENT TON
PK	PACKAGE
SY	SQUARE YARDS

VALUE

CODE	DEFINITION
MV	MONETARY VALUE
RV	RELEASE VALUE

VOLUME

CODE	DEFINITION
VA	ACTUAL VOLUME
VC	CHARGEABLE VOLUME

ALSO SEE: WEIGHT (81)
WEIGHT QUALIFIER (187)
WEIGHT UNIT QUALIFIER (188)

REFERENCE DESIGNATOR(S): L003 L802

223 REPETITIVE PATTERN NUMBER
(SPEC: TYPE= NO MIN= 5; MAX= 5)
"RWC" NUMBER COMPOSED OF A 4 DIGIT NUMBER WITH A FIFTH DIGIT BEING A MODULUS 10 CHECK DIGIT

REFERENCE DESIGNATOR(S): B204 B904

225 SEAL NUMBER
(SPEC: TYPE= AN MIN= 2; MAX= 15)
UNIQUE NUMBER ON SEAL USED TO CLOSE A SHIPMENT

REFERENCE DESIGNATOR(S): G0304 G0305 G0703 G0704
M404 M405 M701 M702
M703 M704 VID04 VID05
W0805 W0806 W1004 W1005

226 SECTION SEVEN CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING APPLICABILITY OF SECTION SEVEN OPTION (IF NOT TRANSMITTED ASSUME NOT IN EFFECT):

CODE	DEFINITION
N	NOT IN EFFECT
S	IN EFFECT

REFERENCE DESIGNATOR(S): B212

227 TARIFF COLUMN
(SPEC: TYPE= AN MIN= 1; MAX= 2)
A TARIFF COMMODITY CLASSIFICATION THAT IS USED, AS A MEANS OF CONTROL, FOR GROUPING OF COMMODITIES IN TARIFF APPLICATIONS

REFERENCE DESIGNATOR(S): L712

232 WEIGHT ALLOWANCE
(SPEC: TYPE= NO MIN= 2; MAX= 6)
ALLOWANCE MADE FOR INCREASED WEIGHT DUE TO SUCH FACTORS AS SNOW

REFERENCE DESIGNATOR(S): G509 N706

233 WEIGHT CAPACITY
(SPEC: TYPE= NO MIN= 2; MAX= 3)
CAPACITY OF CAR ORDERED (STATED IN 1000 POUND UNITS OR 1000 KILOGRAM UNITS)
ALSO SEE: METRIC QUALIFIER (216)

REFERENCE DESIGNATOR(S): N502

241 PROTECTIVE SERVICE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 8)
CODE SPECIFYING PERISHABLE PROTECTIVE SERVICE - RAIL CARRIERS ONLY (SEE APPENDIX B-84.)

REFERENCE DESIGNATOR(S): H303

242 VENT INSTRUCTIONS
(SPEC: TYPE= ID MIN= 1; MAX= 7)
CODE SPECIFYING VENT INSTRUCTIONS:

CODE	DEFINITION
V--	STANDARD VENTILATION AT *--* DEGREES (OTHER THAN 32 DEGREES)
VC	VENTS CLOSED TO DESTINATION
VD--	DIAGONAL VENTILATION AT *--* DEGREES (OTHER THAN 32 DEGREES) - OPEN VENT EACH END OF CAR
VDOI	DIAGONAL VENTS ON IRONS
VO	VENTS OPEN TO DESTINATION
VOI	VENTS ON IRONS
VS	STANDARD VENTILATION AT 32 DEGREES
VS10	STANDARD VENTILATION - SUBSTITUTE CARRIER'S PROTECTIVE SERVICE AT FIRST TERMINAL TRAIN YARD WHERE HEATERS ARE AVAILABLE AND OUTSIDE TEMPERATURE IS 10 DEGREES ABOVE ZERO OR LOWER (PPT #619 RULES 385 AND 515)

REFERENCE DESIGNATOR(S): H304

257 TARIFF APPLICATION CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING TO WHICH TRAFFIC A TARIFF APPLIES:

CODE	DEFINITION
A	INTRASTATE - INTRA PLANT
B	INTERSTATE - INTRA PLANT
C	COMMINGLED
D	RECIPROCAL
E	INTRA TERMINAL
F	INTER TERMINAL
I	INTERNATIONAL
N	INTERSTATE
S	INTRASTATE

REFERENCE DESIGNATOR(S): G6303 H305 L113

274 HAZARDOUS MATERIAL CLASSIFICATION
(SPEC: TYPE= AN MIN= 1; MAX= 30)
FREE-FORM DESCRIPTION OF HAZARDOUS MATERIAL CLASSIFICATION OR DIVISION OR LABEL REQUIREMENTS
ALSO SEE: HAZARDOUS MATERIAL CLASS CODE (209)

REFERENCE DESIGNATOR(S): H202

275 AUTHORIZATION DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE AUTHENTICATION IS MADE

REFERENCE DESIGNATOR(S): D6106 Y603

276 SPECIAL CHARGE DESCRIPTION
(SPEC: TYPE= AN MIN= 2; MAX= 25)
IDENTIFICATION OF SPECIAL CHARGE-- THIS DATA ELEMENT IS USED WHENEVER AN APPLICABLE CODE CANNOT BE FOUND IN DATA ELEMENT 150

ALSO SEE: SPECIAL CHARGE CODE (150)

REFERENCE DESIGNATOR(S): L112 L810

280 EXCHANGE RATE
(SPEC: TYPE= R MIN= 4; MAX= 6)
VALUE TO BE USED AS A MULTIPLIER CONVERSION FACTOR TO CONVERT MONETARY VALUE FROM ONE CURRENCY TO ANOTHER

REFERENCE DESIGNATOR(S): C302 CUR03 F0107

294 TARIFF DISTANCE
(SPEC: TYPE= NO MIN= 1; MAX= 5)
DISTANCE ON WHICH THE RATE FOR A SHIPMENT IS BASED

ALSO SEE: DISTANCE QUALIFIER (295)

REFERENCE DESIGNATOR(S): L713

295 DISTANCE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH IDENTIFIES THE DISTANCE UNIT:

CODE	DEFINITION
A	AIR MILES
F	AIR KILOMETERS
K	KILOMETERS (ACTUAL)
L	TARIFF KILOMETERS
M	MILES (ACTUAL)
T	TARIFF MILES

ALSO SEE: TARIFF DISTANCE (294)

REFERENCE DESIGNATOR(S): L714

296 INTERMEDIATE SWITCH ROAD
(SPEC: TYPE= ID MIN= 2; MAX= 4)
CODE DEFINING A ROAD WHICH NEITHER ORIGINATES NOR TERMINATES THE SHIPMENT BUT PROVIDES A SWITCHING SERVICE BETWEEN TWO ROADHAUL RAIL CARRIERS (SCAC CODE FOR RAIL SWITCH CARRIER
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): E606 R207 R208

297 ADDITIONAL NAME/ADDRESS DATA
(SPEC: TYPE= AN MIN= 1; MAX= 30)
NAME OR ADDRESS INFORMATION

REFERENCE DESIGNATOR(S): D201 D202 D601 D602 F201 F202 F601 F602 S202 S203 U201 U202 U601 U602

298 ORIGIN EDI CARRIER
(SPEC: TYPE= ID MIN= 2; MAX= 4)
CODE (SCAC) IDENTIFYING THE CARRIER WHICH ORIGINATES THE EDI TRANSACTION SET FOR A SHIPMENT
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): B202 BW01

307 EQUIPMENT OWNER
(SPEC: TYPE= ID MIN= 1; MAX= 4)
CODE USED BY SENDER OF TRANSACTION SET IDENTIFYING EQUIPMENT OWNER (THE SCAC IS USED TO INDICATE A CARRIER OWNER.)
(SEE APPENDIX A)

REFERENCE DESIGNATOR(S): IC05 N712

309 LOCATION QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE IDENTIFYING TYPE OF LOCATION IDENTIFIER USED:

CODE	DEFINITION
AC	CITY AND STATE
CC	COUNTRY
CI	CITY
CL	NATIONAL RATE BASIS (NRB)
CO	COUNTY/PARISH AND STATE
CS	CANADIAN SPLC
CY	COUNTY/PARISH
D	CENSUS SCHEDULE D
DE	DESTINATION (SHIPPING)
FA	FACTORY
FE	FREIGHT EQUALIZATION POINT
FI	FIPS 55
IM	MILSTAMP
IP	POSTAL (ZIP)
K	CENSUS SCHEDULE K
MI	MILL
NS	CITY/STATE FROM POINTS BASING TO THAT CITY/STATE IN NRB6000, AND POINTS WITHIN THOSE CITIES SWITCHING DISTRICT
NS	CITY/STATE FROM POINTS
OP	OVERSEAS POINT LOCATION CODE
OR	ORIGIN (SHIPPING POINT)
PL	PLANT
PO	POSTAL
PP	POOL POINT
RS	STANDARD CARRIER ALPHA CODE (SCAC) AND FREIGHT STATION ACCOUNTING CODE (FSAC) - FOUR POSITION SCAC FOLLOWED BY FIVE POSITION FSAC
RT	ROUTE ADMINISTRATIVE MESSAGE TO
S	SPLC
SC	CITY/STATE AND POINTS WITHIN ITS RAILROAD SWITCHING DISTRICT
SL	U.S. SPLC
SP	STATE/PROVINCE
TC	TRANSCONTINENTAL FREIGHT BUREAU (TCFB)
TL	TERMINAL CARGO LOCATION
TN	TOWNSHIP
TX	TAXING DISTRICT
W	WORLD WIDE GEOGRAPHIC LOCATION CODE
WH	WAREHOUSE
ZZ	MUTUALLY DEFINED

ALSO SEE: LOCATION CODE (310)

REFERENCE DESIGNATOR(S): AC05 AC06 GY03 N405 R402 S907 TAX02 TAX04 TAX06 TAX08 TAX10 TD205 W2807

310 LOCATION IDENTIFIER
(SPEC: TYPE= AN MIN= 1; MAX= 25)
CODE WHICH IDENTIFIES A SPECIFIC GEOGRAPHIC LOCATION

ALSO SEE: LOCATION QUALIFIER (309)

REFERENCE DESIGNATOR(S): AC08 AC10 BA310 CD109 F0604 GY05 GY06 M1102 M1203 M1204 M1302 N406 P401 R403 S908 TAX03 TAX05 TAX07 TAX09 TAX11 TD206 W2806

313 AUTHORITY IDENTIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE INDICATING AUTHORITY FOR AUTHENTICATION:

CODE	DEFINITION
BC	BILLING CLERK
CA	CARRIER
NR	NON-RECOURSE
RC	RATE CLERK
RV	RELEASE VALUE
SH	SHIPPER

REFERENCE DESIGNATOR(S): Y601

319 TEMPERATURE CONTROL
(SPEC: TYPE= AN MIN= 3; MAX= 6)
FREE-FORM ABBREVIATION OF TEMPERATURE RANGE OR FLASH POINT TEMPERATURE

REFERENCE DESIGNATOR(S): N713

329 TRANSACTION SET CONTROL NUMBER
(SPEC: TYPE= AN MIN= 4; MAX= 9)
IDENTIFYING CONTROL NUMBER ASSIGNED BY THE ORGINATOR FOR A TRANSACTION SET

ALSO SEE: DATA INTERCHANGE CONTROL NUMBER (28)

REFERENCE DESIGNATOR(S): A201 A301 A401 AK202 SE02 ST02

333 TERMS BASIS DATE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE IDENTIFYING THE BEGINNING DATE OF THE TERMS PERIOD:

CODE	DEFINITION
1	SHIP DATE
2	DELIVERY DATE
3	INVOICE DATE
4	SPECIFIED DATE (SEE DATA ELEMENT 446 - TERMS NET DUE DATE)
5	INVOICE RECEIPT DATE
ZZ	MUTUALLY DEFINED

REFERENCE DESIGNATOR(S): G2302 ITD02

336 TERMS TYPE CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE IDENTIFYING TYPE OF PAYMENT TERMS:

CODE	DEFINITION

01 BASIC
02 EOM
03 FIXED DATE
04 DEFERRED
05 DISCOUNT NOT APPLICABLE
06 MIXED
07 EXTENDED
08 BASIC DISCOUNT OFFERED
09 PROXIMO
10 INSTANT
ZZ MUTUALLY DEFINED
99 OTHER

REFERENCE DESIGNATOR(S): G2301 ITD01

337 TIME
(SPEC: TYPE= TM MIN= 4; MAX= 4)
TIME EXPRESSED IN 24-HOUR CLOCK TIME (HHMM)
(TIME RANGE: 0000 THROUGH 2359)
ALSO SEE: TIME QUALIFIER (176)

REFERENCE DESIGNATOR(S): CUR09 CUR12 CUR15 CUR18 CUR21 DTM03 FST07 G6204 JL03 M303 N905 SCH08 SCH11 SHH04 SHP05 SHP07 W1707 X406 XB02 XF08

338 TERMS DISCOUNT PERCENT
(SPEC: TYPE= R MIN= 1; MAX= 6)
TERMS DISCOUNT PERCENTAGE, EXPRESSED AS A PERCENT, AVAILABLE TO THE PURCHASER IF AN INVOICE IS PAID ON OR BEFORE THE TERMS DISCOUNT DUE DATE

REFERENCE DESIGNATOR(S): G2303 ITD03

342 PERCENT OF INVOICE PAYABLE
(SPEC: TYPE= R MIN= 1; MAX= 5)
AMOUNT OF INVOICE PAYABLE EXPRESSED IN PERCENT (RE: DEFERRED TERMS)
ALSO SEE: TERMS TYPE CODE (336)

REFERENCE DESIGNATOR(S): G3503 ITD11

351 TERMS DISCOUNT DAYS DUE
(SPEC: TYPE= NO MIN= 1; MAX= 3)
NUMBER OF DAYS IN THE TERMS DISCOUNT PERIOD BY WHICH PAYMENT IS DUE IF TERMS DISCOUNT IS EARNED

REFERENCE DESIGNATOR(S): G2305 ITD05

352 DESCRIPTION
(SPEC: TYPE= AN MIN= 1; MAX= 80)
A FREE-FORM DESCRIPTION TO CLARIFY THE RELATED DATA ELEMENTS AND THEIR CONTENT

REFERENCE DESIGNATOR(S): BCT09 CTB02 CTT07 FOB03 FOB07 ITA13 ITD12 PID05 PKG05 PO308 PO404 PO409 PO412 PRS02 PWK07 REF03 RMT10 SCH03 SHH05 SSS07 TD404

362 TERMS DISCOUNT AMOUNT
(SPEC: TYPE= N2 MIN= 1; MAX= 10)
TOTAL AMOUNT OF TERMS DISCOUNT

REFERENCE DESIGNATOR(S): G2308 G3304 G3407 ITD08 TDS04

369 FREE-FORM DESCRIPTION
(SPEC: TYPE= AN MIN= 1; MAX= 45)
FREE-FORM DESCRIPTION TEXT

REFERENCE DESIGNATOR(S): F0312 F0710 G1404 G2309 G4004 G4104 G6901 G7301 N903 N1002 R211

370 TERMS DISCOUNT DUE DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE PAYMENT IS DUE IF DISCOUNT IS TO BE EARNED

REFERENCE DESIGNATOR(S): G2304 ITD04

373 DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE (YYMMDD)
ALSO SEE: DATE QUALIFIER (432)

REFERENCE DESIGNATOR(S): AC13 AC14 ACK05 ATH02 ATH05 B312 BFR06 BFR07 BFR08 BFR09 BM05 BQR05 BQT05 BRA02 CD108 CUR08 CUR11 CUR14 CUR17 CUR20 D6107 DK07 DK08 DTM02 F0201 F1203 F1305 FST04 FST05 G517 G2102 G2603 G3604 G4701 G6202 JL02 M302 N904 PO302 SA01 SA05 SCH07 SCH10 SHH03 SHP04 SHP06 SS01 SS05 SS06 XB01 XF07

386 TERMS NET DAYS
(SPEC: TYPE= NO MIN= 1; MAX= 3)
NUMBER OF DAYS UNTIL TOTAL INVOICE AMOUNT IS DUE (DISCOUNT NOT APPLICABLE)

REFERENCE DESIGNATOR(S): G2307 ITD07

388 TERMS DEFERRED DUE DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE DEFERRED PAYMENT OR PERCENT OF INVOICE PAYABLE IS DUE
ALSO SEE: PERCENT OF INVOICE PAYABLE (342)

REFERENCE DESIGNATOR(S): G3501 ITD09

389 DEFERRED AMOUNT DUE
(SPEC: TYPE= N2 MIN= 1; MAX= 10)
DEFERRED AMOUNT(S) DUE FOR PAYMENT AT DATE(S) STATED IN INVOICE OR PURCHASE ORDER

REFERENCE DESIGNATOR(S): G3502 ITD10

402 COMMUNICATIONS ID
(SPEC: TYPE= AN MIN= 1; MAX= 10)
A UNIQUE STRING OF CHARACTERS THAT IDENTIFIES THE TRANSMITTING COMPANY.

REFERENCE DESIGNATOR(S): B601

403 COMMUNICATIONS PASSWORD
(SPEC: TYPE= AN MIN= 1; MAX= 10)
A UNIQUE SET OF CHARACTERS THAT A SENDING COMPANY TRANSMITS TO A RECEIVING COMPANY TO SATISFY SECURITY REQUIREMENTS (THIS IDENTIFICATION IS CONTROLLED BY THE RECEIVING LOCATION AND MAY BE CHANGED PERIODICALLY.)

REFERENCE DESIGNATOR(S): B602

404 TRANSMISSION CONTROL NUMBER
(SPEC: TYPE= NO MIN= 1; MAX= 5)
A UNIQUE NUMBER ASSIGNED TO THE TRANSMISSION BY THE SENDER

REFERENCE DESIGNATOR(S): B607 E601

405 NO. OF INCLUDED FUNCTIONAL GROUPS
(SPEC: TYPE= NO MIN= 1; MAX= 5)
A COUNT OF THE NUMBER OF FUNCTIONAL GROUPS INCLUDED IN A TRANSMISSION

REFERENCE DESIGNATOR(S): E602

446 TERMS NET DUE DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE WHEN TOTAL INVOICE AMOUNT BECOMES DUE

REFERENCE DESIGNATOR(S): G2306 ITD06

447 LOOP IDENTIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 4)
CODE IDENTIFYING LOOP WITHIN THE TRANSACTION SET WHICH IS BOUNDED BY THE RELATED "LS" AND "LE" SEGMENTS (CORRESPONDING "LS" AND "LE" SEGMENTS MUST HAVE THE SAME VALUE FOR LOOP IDENTIFIER.)

(NOTE: THE LOOP ID NUMBER GIVEN IN EDI VOLUME III IS RECOMMENDED AS THE VALUE FOR THIS DATA ELEMENT IN SEGMENTS "LS" AND "LE".)

REFERENCE DESIGNATOR(S): AK303 LE01 LS01

449 FIXED FORMAT INFORMATION
(SPEC: TYPE= AN MIN= 1; MAX= 80)
DATA IN FIXED FORMAT AGREED UPON BY SENDER AND RECEIVER

REFERENCE DESIGNATOR(S): K301

455 RESPONSIBLE AGENCY CODE
(SPEC: TYPE= ID MIN= 1; MAX= 2)
CODE USED IN CONJUNCTION WITH THE VERSION DATA ELEMENT TO IDENTIFY THE ISSUER OF THE STANDARD:

CODE	DEFINITION
T	TDCC
X	ASC X12

REFERENCE DESIGNATOR(S): GS07

458 DUNNAGE DESCRIPTION
(SPEC: TYPE= AN MIN= 2; MAX= 25)
MATERIAL USED TO PROTECT LADING

REFERENCE DESIGNATOR(S): L010

460 SHIPMENT WEIGHT CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING THE WAY BY WHICH WEIGHTS ARE OBTAINED FOR A PARTICULAR SHIPMENT:

CODE	DEFINITION
A	WEIGHT AGREEMENT (ORIGIN)
D	DESTINATION WEIGHT AGREEMENT
O	ORIGIN SUPERVISED WEIGHTS (STATE OR OTHER LEGAL BODY)
P	DESTINATION RAILROAD SCALE WEIGHTS
Q	MIXED WEIGHTS CARLOAD AND COMMODITIES FOR UFC RULE 10
R	RAILROAD SCALE WEIGHTS
S	SHIPPER CERTIFIED SCALE WEIGHTS
T	TARIFF WEIGHTS
U	NOT SPECIFIED/UNKNOWN

REFERENCE DESIGNATOR(S): B217 BW04

467 PRIORITY
(SPEC: TYPE= NO MIN= 1; MAX= 1)
NUMBER INDICATING IMPORTANCE

ALSO SEE: PRIORITY CODE (470)

REFERENCE DESIGNATOR(S): Y701

468 PORT CALL FILE NUMBER
(SPEC: TYPE= NO MIN= 4; MAX= 4)
REFERENCE NUMBER ASSIGNED BY A SHIPPER

REFERENCE DESIGNATOR(S): Y704

469 REQUIRED DELIVERY DATE
(SPEC: TYPE= DT MIN= 6; MAX= 6)
DATE SPECIFIED BY THE SHIPPER INDICATING WHEN THE SHIPMENT IS REQUIRED AT THE CONSIGNEE'S LOCATION

REFERENCE DESIGNATOR(S): Y705

470 PRIORITY CODE
(SPEC: TYPE= NO MIN= 1; MAX= 1)
CODE INDICATING LEVEL OF PRIORITY; 1=HIGHEST; 0 IMPLIES PRIORITY NOT ASSIGNED

REFERENCE DESIGNATOR(S): Y702

471 PRIORITY CODE QUALIFIER
(SPEC: TYPE= AN MIN= 1; MAX= 1)
NUMBER INDICATING THE NUMBER OF LEVELS OF PRIORITY (1 TO 9) USED FOR DATA ELEMENT 470, PRIORITY CODE

REFERENCE DESIGNATOR(S): Y703

479 FUNCTIONAL IDENTIFIER
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE IDENTIFYING A GROUP OF APPLICATION RELATED TRANSACTION SETS (SEE APPENDIX C, EDI TRANSACTION SET IDENTIFIERS.)

REFERENCE DESIGNATOR(S): AK101 GS01

480 VERSION
(SPEC: TYPE= ID MIN= 1; MAX= 12)
A CODE INDICATING THE VERSION AND RELEASE OF VOLUME III IN THE EDI STANDARDS (SEE APPENDIX C)

(EDI VOLUME III HAS SEPARATE PUBLICATIONS FOR EACH GROUP OF APPLICATIONS, I.E. MOTOR TRANSPORTATION APPLICATIONS, RETAIL INDUSTRY APPLICATIONS, ET AL. EACH PUBLICATION HAS ITS OWN SEQUENCE OF VERSION ASSIGNMENT NUMBERS. THE VERSION CODE IS USED IN CONJUNCTION WITH THE FUNCTIONAL IDENTIFIER TO SPECIFY AN EXACT VERSION OF AN EDI STANDARD.)

THE FIRST LETTER OF THE VERSION CODE HAS THE ASSIGNMENT:

A	AIR APPLICATIONS
B	BUSAP (BUSINESS APPLICATIONS)
C	OCEAN APPLICATIONS
D	AUTOMOTIVE INDUSTRY APPLICATIONS
F	FREIGHT CLAIMS
G	GENERAL APPLICATION
M	MOTOR APPLICATIONS
P	DRUG INDUSTRY APPLICATIONS
R	RAIL APPLICATIONS
T	TARIFF INDUSTRY APPLICATIONS
U	RETAIL INDUSTRY APPLICATIONS (UCS)
W	WAREHOUSE APPLICATIONS

THE NUMBER FOLLOWING THE FIRST LETTER RELATES TO A PUBLICATION DATE OF A PARTICULAR EDI VOLUME III AS ISSUED BY TDCC. THIS NUMBER IS FOLLOWED BY A SLASH SEPARATOR (/) AND A RELEASE NUMBER. THE RELEASE NUMBER RELATES TO AN UPDATE (OR REVISION) WHICH DID NOT REQUIRE A TOTAL REPUBLICATION OF THAT VOLUME III. (EXAMPLE: U1/1)

FOR TRANSACTION SETS MAINTAINED BY ASC X12 (CONTENT OF DE455 = X) THE VERSION CODE IS STRUCTURED AS FOLLOWS:

POSITION	CONTENT
1-3	MAJOR VERSION NUMBER
4-6	RELEASE LEVEL OF VERSION
7-12	INDUSTRY OR TRADE ASSOCIATION ID (USER ASSIGNED)

ALSO SEE: FUNCTIONAL IDENTIFIER (479)

REFERENCE DESIGNATOR(S): GS08

501 CUSTOMS DOCUMENTATION HANDLING CODE
(SPEC: TYPE= ID MIN= 2; MAX= 2)
CODE DEFINING METHOD OF HANDLING FOR DOCUMENTATION.

CODE	DEFINITION
14	PROFORMA AND B13 ENTERED
15	PROFORMA ENTERED AND B13 WITH CAR
16	PROFORMA ENTERED AND B13 BY SUMMARY REPORTING
17	PROFORMA ENTERED WITH B13 WITH BROKER PORT OF EXIT
24	PROFORMA WITH CAR AND B13 ENTERED
25	PROFORMA AND B13 WITH CAR
26	PROFORMA WITH CAR AND B13 BY SUMMARY REPORTING
27	PROFORMA WITH CAR AND B13 WITH BROKER PORT OF EXIT
34	PROFORMA WITH BROKER PORT OF EXIT AND B13 ENTERED
35	PROFORMA WITH BROKER PORT OF EXIT AND B13 WITH CAR
36	PROFORMA WITH BROKER PORT OF EXIT B13 BY SUMMARY REPORTING
37	PROFORMA AND B13 WITH BROKER PORT OF EXIT
90	CUSTOMS A 4 1/2

REFERENCE DESIGNATOR(S): B218

515 NUMBER OF TRANSACTION SETS TOTALLED
(SPEC: TYPE= NO MIN= 1; MAX= 7)
NUMBER OF TRANSACTION SETS (IDENTIFIED BY DATA ELEMENT 143, SET IDENTIFIER) FOR WHICH THE TOTALS IN THE L10 SEGMENT APPLY

REFERENCE DESIGNATOR(S): BT102

516 TOTAL QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING THE SPAN OF THE TOTAL SPECIFIED BY DATA ELEMENT 518, TOTAL:

CODE	DEFINITION
1	FUNCTIONAL GROUP TOTAL
2	MONTH TO DATE TOTAL
3	YEAR TO DATE TOTAL
4	MUTUALLY AGREED TOTAL

REFERENCE DESIGNATOR(S): BT103 BT106 BT109

517 DATA ELEMENT TOTALLED
(SPEC: TYPE= AN MIN= 4; MAX= 5)
DATA ELEMENT LOCATION INDICATOR THAT IDENTIFIES THE DATA ELEMENT IN EACH TRANSACTION SET THAT WAS USED IN CALCULATING THE TOTAL (DATA ELEMENT 518)

REFERENCE DESIGNATOR(S): BT104 BT107 BT110

518 TOTAL
(SPEC: TYPE= R MIN= 1; MAX= 11)
ALGEBRAIC SUM OF ALL DATA ELEMENTS IDENTIFIED BY DATA ELEMENT TOTALLED (DATA ELEMENT 517) FOR THE SPAN SPECIFIED BY TOTAL QUALIFIER (DATA ELEMENT 516)

REFERENCE DESIGNATOR(S): BT105 BT108 BT111

519 TIME PERIOD QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING THE LENGTH OF TIME PERIOD BEING TERMINATED:

CODE	DEFINITION
1	MONTH
2	YEAR

REFERENCE DESIGNATOR(S): BT201 BT203

520 TIME PERIOD COMPLETED
(SPEC: TYPE= NO MIN= 2; MAX= 2)
NUMBER OF THE MONTH OR THE FISCAL/CALENDAR YEAR BEING COMPLETED BY THE TRANSACTIONS IN THE FUNCTIONAL GROUP
ALSO SEE: TIME PERIOD QUALIFIER 519

REFERENCE DESIGNATOR(S): BT202 BT204

567 EQUIPMENT LENGTH
(SPEC: TYPE= NO MIN= 4; MAX= 5)
LENGTH (IN FEET AND INCHES) OF EQUIPMENT ORDERED OR USED TO TRANSPORT SHIPMENT. (THE FORMAT IS "FFFII" WHERE "FFF" IS FEET AND 'II' IS INCHES. THE RANGE FOR 'II' IS 00 THROUGH 12.)

REFERENCE DESIGNATOR(S): IC06 N501 N715

571 TARE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
SPECIFICATION OF THE TYPE OF TARE:

CODE	DEFINITION
A	ACTUAL
M	MARKED

REFERENCE DESIGNATOR(S): G508 IC04 N716

574 HEIGHT ORDERED
(SPEC: TYPE= NO MIN= 4; MAX= 4)
HEIGHT (IN FEET AND INCHES) OF EQUIPMENT USED TO TRANSPORT A SHIPMENT

REFERENCE DESIGNATOR(S): N506

584 OVERLENGTH QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH INDICATES WHETHER OR NOT SPECIFIED EQUIPMENT IS OF EXCESSIVE LENGTH:

CODE	DEFINITION
Y	YES, EXCESSIVE LENGTH
N	NO, SHIPMENT IS NOT EXCESSIVE LENGTH

REFERENCE DESIGNATOR(S): N507

585 PRIOR LOAD QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH INDICATES WHETHER OR NOT A PRIOR LOAD IS APPLICABLE:

CODE	DEFINITION
Y	PRIOR LOAD IS APPLICABLE
N	PRIOR LOAD IS NOT APPLICABLE

REFERENCE DESIGNATOR(S): N508

643 LADING PERCENTAGE
(SPEC: TYPE= N2 MIN= 2; MAX= 4)
COMMODITY PERCENTAGE FOR RATING

REFERENCE DESIGNATOR(S): N509

644 LADING PERCENT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING TYPE OF LADING PERCENTAGE:

CODE	DEFINITION
A	COAL MOISTURE ALLOWANCE
M	TANK CAR MIXTURE
O	TANK CAR OUTAGE
S	SAND OR STONE AND RELATED ARTICLES (AGGREGATES)

REFERENCE DESIGNATOR(S): N510

715 GROUP ACKNOWLEDGE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
THIS INDICATES IF THE FULL OR PARTIAL FUNCTIONAL GROUP IS ACCEPTED OR REJECTED AFTER TRANSFER.

CODE	DEFINITION
A	THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED. AN ACCEPTANCE OF A FUNCTIONAL GROUP IS AN ACCEPTANCE OF ALL TRANSACTION SETS IN THAT FUNCTIONAL GROUP.
E	THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED BUT ERRORS ARE NOTED. THIS MEANS THAT THE SENDER MUST NOT RESEND THIS DATA.
R	THE TRANSMITTED FUNCTIONAL GROUP IS REJECTED. A REJECTION OF A FUNCTIONAL GROUJP IS A REJECTION OF ALL TRANSACTION SETS IN THAT FUNCTIONAL GROUP. DEPENDING ON THE ERROR REASON THE SENDER MAY RESEND THIS DATA.
P	PART OF THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED BY TRANSACTION SET.

REFERENCE DESIGNATOR(S): AK901

716 FUNCTIONAL GROUP NOTE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE INDICATING THE ERROR FOUND PROCESSING THE FUNCTIONAL GROUP.

CODE	DEFINITION
1	THIS FUNCTIONAL GROUP TYPE IS NOT SUPPORTED.
2	THIS VERSION OF THE FUNCTIONAL GROUP IS NOT SUPPORTED.
3	THE FUNCTIONAL GROUP TRAILER IS MISSING.

519 TIME PERIOD QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING THE LENGTH OF TIME PERIOD BEING TERMINATED:

CODE	DEFINITION
1	MONTH
2	YEAR

REFERENCE DESIGNATOR(S): BT201 BT203

520 TIME PERIOD COMPLETED
(SPEC: TYPE= NO MIN= 2; MAX= 2)
NUMBER OF THE MONTH OR THE FISCAL/CALENDAR YEAR BEING COMPLETED BY THE TRANSACTIONS IN THE FUNCTIONAL GROUP
ALSO SEE: TIME PERIOD QUALIFIER 519

REFERENCE DESIGNATOR(S): BT202 BT204

567 EQUIPMENT LENGTH
(SPEC: TYPE= NO MIN= 4; MAX= 5)
LENGTH (IN FEET AND INCHES) OF EQUIPMENT ORDERED OR USED TO TRANSPORT SHIPMENT. (THE FORMAT IS "FFFII" WHERE "FFF" IS FEET AND 'II' IS INCHES. THE RANGE FOR 'II' IS 00 THROUGH 12.)

REFERENCE DESIGNATOR(S): IC06 N501 N715

571 TARE QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
SPECIFICATION OF THE TYPE OF TARE:

CODE	DEFINITION
A	ACTUAL
M	MARKED

REFERENCE DESIGNATOR(S): G508 IC04 N716

574 HEIGHT ORDERED
(SPEC: TYPE= NO MIN= 4; MAX= 4)
HEIGHT (IN FEET AND INCHES) OF EQUIPMENT USED TO TRANSPORT A SHIPMENT

REFERENCE DESIGNATOR(S): N506

584 OVERLENGTH QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH INDICATES WHETHER OR NOT SPECIFIED EQUIPMENT IS OF EXCESSIVE LENGTH:

CODE	DEFINITION
Y	YES, EXCESSIVE LENGTH
N	NO, SHIPMENT IS NOT EXCESSIVE LENGTH

REFERENCE DESIGNATOR(S): N507

585 PRIOR LOAD QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE WHICH INDICATES WHETHER OR NOT A PRIOR LOAD IS APPLICABLE:

CODE	DEFINITION
Y	PRIOR LOAD IS APPLICABLE
N	PRIOR LOAD IS NOT APPLICABLE

REFERENCE DESIGNATOR(S): N508

643 LADING PERCENTAGE
(SPEC: TYPE= N2 MIN= 2; MAX= 4)
COMMODITY PERCENTAGE FOR RATING

REFERENCE DESIGNATOR(S): N509

644 LADING PERCENT QUALIFIER
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE IDENTIFYING TYPE OF LADING PERCENTAGE:

CODE	DEFINITION
A	COAL MOISTURE ALLOWANCE
M	TANK CAR MIXTURE
O	TANK CAR OUTAGE
S	SAND OR STONE AND RELATED ARTICLES (AGGREGATES)

REFERENCE DESIGNATOR(S): N510

715 GROUP ACKNOWLEDGE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
THIS INDICATES IF THE FULL OR PARTIAL FUNCTIONAL GROUP IS ACCEPTED OR REJECTED AFTER TRANSFER.

CODE	DEFINITION
A	THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED. AN ACCEPTANCE OF A FUNCTIONAL GROUP IS AN ACCEPTANCE OF ALL TRANSACTION SETS IN THAT FUNCTIONAL GROUP.
E	THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED BUT ERRORS ARE NOTED. THIS MEANS THAT THE SENDER MUST NOT RESEND THIS DATA.
R	THE TRANSMITTED FUNCTIONAL GROUP IS REJECTED. A REJECTION OF A FUNCTIONAL GROUJP IS A REJECTION OF ALL TRANSACTION SETS IN THAT FUNCTIONAL GROUP. DEPENDING ON THE ERROR REASON THE SENDER MAY RESEND THIS DATA.
P	PART OF THE TRANSMITTED FUNCTIONAL GROUP IS ACCEPTED BY TRANSACTION SET.

REFERENCE DESIGNATOR(S): AK901

716 FUNCTIONAL GROUP NOTE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE INDICATING THE ERROR FOUND PROCESSING THE FUNCTIONAL GROUP.

CODE	DEFINITION
1	THIS FUNCTIONAL GROUP TYPE IS NOT SUPPORTED.
2	THIS VERSION OF THE FUNCTIONAL GROUP IS NOT SUPPORTED.
3	THE FUNCTIONAL GROUP TRAILER IS MISSING.

4 THE DATA INTERCHANGE CONTROL NUMBER IN THE HEADER AND TRAILER DO NOT MATCH. THE VALUE FROM THE HEADER IS USED IN THE ACKNOWLEDGEMENT.
5 THE NUMBER OF INCLUDED SETS DOES NOT MATCH THE ACTUAL COUNT.

REFERENCE DESIGNATOR(S): AK905 AK906 AK907 AK908 AK909

717 SET ACKNOWLEDGE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 1)
CODE INDICATING IF THE TRANSACTION SET IS ACCEPTED OR REJECTED AFTER TRANSFER.

CODE	DEFINITION
A	THE TRANSMITTED TRANSACTION SET IS ACCEPTED.
E	THE TRANSMITTED TRANSACTION SET IS ACCEPTED BUT ERRORS ARE NOTED. THIS MEANS THAT THE SENDER MUST NOT RESEND THIS DATA.
R	THE TRANSMITTED TRANSACTION SET IS REJECTED. DEPENDING ON THE ERROR REASON, THE SENDER MAY RESEND THIS DATA.

REFERENCE DESIGNATOR(S): AK501

718 TRANSACTION SET NOTE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE INDICATING THE ERROR FOUND IN PROCESSING THE TRANSACTION SET

CODE	DEFINITION
1	THIS TRANSACTION SET IS NOT SUPPORTED.
2	THE TRANSACTION SET TRAILER IS MISSING.
3	THE TRANSACTION SET CONTROL NUMBER IN THE HEADER AND TRAILER DO NOT MATCH. THE VALUE FROM THE HEADER IS USED IN THE ACKNOWLEDGEMENT.
4	THE NUMBER OF INCLUDED SEGMENTS DOES NOT MATCH THE ACTUAL COUNT.
5	ONE OR MORE SEGEMENTS ARE IN ERROR.

REFERENCE DESIGNATOR(S): AK502 AK503 AK504 AK505 AK506

719 SEGMENT POSITION IN SET
(SPEC: TYPE= NO MIN= 1; MAX= 6)
THE NUMERICAL COUNT POSITION OF THIS DATA SEGMENT FROM THE START OF THE TRANSACTION SET; THE TRANSACTION SET HEADER IS COUNT POSITION 1.

REFERENCE DESIGNATOR(S): AK302

720 SEGMENT NOTE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE INDICATING THE ERROR FOUND PROCESSING THE DATA SEGMENT

CODE	DEFINITION
1	UNRECOGNIZED SEGMENT ID
2	UNEXPECTED SEGMENT
3	MANDATORY SEGMENT MISSING

REFERENCE DESIGNATOR(S): AK304 AK305 AK306 AK307 AK308

721 SEGMENT ID
(SPEC: TYPE= ID MIN= 2; MAX= 3)
CODE DEFINING THE SEGMENT ID OF THE DATA SEGMENT IN ERROR.
(SEE APPENDIX C)

REFERENCE DESIGNATOR(S): AK301

722 ELEMENT POSITION IN SEGMENT
(SPEC: TYPE= NO MIN= 1; MAX= 2)
THIS IS USED TO INDICATE THE RELATIVE POSITION OF THE DATA ELEMENT IN ERROR IN THIS DATA SEGMENT. THE COUNT STARTS WITH 1 FOR THE DATA ELEMENT IMMEDIATELY FOLLOWING THE SEGMENT ID. THIS VALUE IS 0 FOR AN ERROR IN THE SEGMENT ID.

REFERENCE DESIGNATOR(S): AK401

723 DATA ELEMENT NOTE CODE
(SPEC: TYPE= ID MIN= 1; MAX= 3)
CODE INDICATING THE ERROR FOUND IN PROCESSING THE DATA ELEMENT.

CODE	DEFINITION
1	MANDATORY ELEMENT MISSING
2	CONDITIONAL ELEMENT MISSING BUT NEEDED HERE
3	TOO MANY ELEMENTS
4	ELEMENT TOO SHORT
5	ELEMENT TOO LONG
6	BAD CHARACTER IN ELEMENT
7	BAD CODE IN ID TYPE

REFERENCE DESIGNATOR(S): AK403

724 COPY OF BAD DATA ELEMENT
(SPEC: TYPE= AN MIN= 1; MAX= 99)
THIS IS A COPY OF THE DATA ELEMENT IN ERROR.

REFERENCE DESIGNATOR(S): AK404

725 DATA ELEMENT REFERENCE NUMBER
(SPEC: TYPE= NO MIN= 1; MAX= 4)
REFERENCE NUMBER USED TO LOCATE THE DATA ELEMENT IN THE DICTIONARY.

REFERENCE DESIGNATOR(S): AK402

DATA ELEMENTS

742 ROUTE DESCRIPTION
(SPEC: TYPE= AN MIN= 1; MAX= 35)
POINT TO POINT ROUTING DESCRIPTION

REFERENCE DESIGNATOR(S): R213

761 EQUIPMENT NUMBER CHECK DIGIT
(SPEC: TYPE= NO MIN= 1; MAX= 1)
NUMBER WHICH DESIGNATES THE CHECK DIGIT APPLIED TO A PIECE OF EQUIPMENT

REFERENCE DESIGNATOR(S): N718 W213

765 DAY OF MONTH
(SPEC: TYPE= NO MIN= 1; MAX= 2)
THE NUMERIC VALUE OF THE DAY OF THE MONTH BETWEEN 1 AND THE MAXIMUM DAY OF THE MONTH BEING REFERENCED

REFERENCE DESIGNATOR(S): ITD13

APPENDIX C

SHIPMENT INFORMATION CONVENTIONS DOCUMENT

Electronic Data Interchange (EDI) standards, or transaction sets, provide a structure for transmitting data between incompatible systems of independent users. However, without a universal set of rules prescribing the location of specific informational requirements within the standard, that structure has little value. Those rules, or conventions, provide consistent data usage at every activity. They are especially important to programmers responsible for developing files to interface with application systems. The conventions developed for the test, particularly as they apply to the Shipment Information standard (Annex 2 to Appendix B), are described in this appendix.

CONVENTIONS DEVELOPMENT

The conventions for the Shipment Information standard were established by comparing the Defense Traffic Management Regulation (DTMR) rules for preparation of the Government Bill of Lading (GBL) with the draft Shipment Information standard. Table C-1, which appears at the end of this appendix, shows the conventions document resulting from that comparison.

CONVENTIONS MAINTENANCE

The conventions document must change when either the data requirements or the standard change. Since the Shipment Information standard had not previously been widely applied, changes were common during the test, and should continue for the next few years. Some of the changes will be dictated by pressures to reduce the amount of data being transmitted and thereby the telecommunications costs. Furthermore, many of the users of GBL data, such as the Military Traffic Management Command (MTMC), carriers, consignees, and finance centers, have different data requirements. Those requirements may force development of unique shipment information conventions for each user. Finally, transmission of free form information dramatically increases the cost of telecommunications. As a result, additional changes to the Shipment Information standard will be required whenever

possible to eliminate free-form information with standard codes that can be processed by a computer.

Maintenance of data conventions will require extensive coordination throughout the DoD. Changes must be agreed upon by all DoD users and distributed to the field activities for implementation. If outside trading partners, such as commercial carriers, are affected by the conventions, even more coordination is required. Concurrence on conventions issues must be maintained by participation in EDI standards committees and subcommittees.

CONVENTIONS FOR REMAINING STANDARDS

For the DoD EDI test, we did not need to develop conventions for standards other than the Shipping Information standard for three reasons:

- The Freight Details and Invoice standard has well-developed conventions that are used by a large number of commercial motor carriers. In the test, DoD finance centers used several pieces of information from this standard.
- Both the Function Group Totals and Functional Acknowledgments standards provide formats for transmitting EDI support messages. Since there is little need for interpretation of data usage, conventions are not needed for these standards.
- The File Transfer standard gives trading partners the capability to exchange mutually agreed upon message formats. These formats are wrapped in EDI headers and trailers. Since this standard permits any message format to be transmitted, conventions are not required.

SUMMARY

The development and maintenance of conventions for using EDI standards are major tasks. Furthermore, sophisticated standards, such as the Shipment Information and the Freight Details and Invoice standards, require strong data conventions to be effective. They also have the potential to be influenced by such issues as telecommunications costs, operating procedures, application system capabilities, and trading-partner data requirements.

TABLE C-1

CONVENTIONS GOVERNING USE OF THE SHIPMENT INFORMATION TRANSACTION SET

DTMR GBL Requirement	TS 204 – Data Element Reference	TS 204 – Data Elements Requiring Qualifiers	Qualifier(s) For Use With The GBL
1. Transportation Co. Tendered To	B202		
2. GBL Number	B206		
3. Method of Payment	B208	B208 (DE #146)	ZZ – Mutually Defined
4. Number of Truckloads	B216		
5. Name and Title of Issuing Officer and Date Issued	Y601, 02, 03	Y601 (DE #313)	* IO – Issuing Officer
6. Issuing Office (GBLOC) and Date Issued	Y601, 02, 03[a]	Y601 (DE #313)	* GB – GBLOC of Issuing Office
7. Transportation Priority	Y702		
8. Desired Delivery Date	Y705[b]		
9. Route Order/Release No./Emergency Routings	N901, 02	N901 (DE #128)	* RO – Route Order * ER – Export Release * EM – Emergency

* Codes to be added to the standard

[a] Date issued must be repeated in Y603

[b] Y705 is the "required delivery date." An agreement with the carriers is necessary so that the date in this field is understood to be the "desired delivery date."

Notes: 1 All dates are expressed YYMMDD

2 For the TELINK package, each fixed record ID must contain Fields 1–2, 3–10, and 120; Fields 3–10 contain the Standard Carrier Alpha Code (SCAC) for all GBLs involving a test motor carrier, or G _ _ _ _ _ [where the blanks are the Government Bill of Lading Office Code (GBLOC) of a test consignee] for all GBLs not involving a test motor carrier

TABLE C-1

CONVENTIONS GOVERNING USE OF THE SHIPMENT INFORMATION TRANSACTION SET (Continued)

DTMR GBL REQUIREMENT	TS 204 – Data Element Reference	TS 204 – Data Elements Requiring Qualifiers	Qualifier(s) For Use With The GBL
10. Appropriation Summary	N901, 02, 03[c]	N901 (DE #128)	* AP – Appropriation
11. Type of Rate	N901, 02	N901 (DE #128)	* TR – Type of Rate
12. Authority for Shipment and Date (Contract or P.O. No.)	N901, 02, 04	N901 (DE #128)	* AT – Authority
13. From (Shipping Point)	N101, 02 N201 N401, 02, 03[d] N405, 06	N101 (DE #98) N405 (DE #309)	SF – Ship From S – SPLC
14 *Full Name of Shipper*	N101, 02 N201 N301, 02 N401, 02, 03[d]	N101 (DE #98)	SH – Shipper
15. Consignee (GBLOC)	N101, 02, 03, 04 N201 N301, 02 N401, 02, 03[d] N405, 06	N101 (DE #98) N103 (DE #66)	CN – Consignee * 21 – GBLOC

* Codes to be added to the standard

[c] The N903 should contain the appropriation number, and the N902 should contain the weight summary for that appropriation number. The standard allows a maximum use of 10

[d] The use of separate CITY, STATE, and ZIP CODE Fields is preferred over free form addresses

Notes: 1 All dates are expressed YYMMDD

2 For the TELINK package, each fixed record ID must contain Fields 1~2, 3~10, and 120, Fields 3~10 contain the SCAC code for all GBLs involving a test motor carrier, or G _ _ _ _ (where the blanks are the GBLOC code of a test consignee) for all GBLs not involving a test motor carrier

3 SPLC Standard Point Location Code

TABLE C-1

CONVENTIONS GOVERNING USE OF THE SHIPMENT INFORMATION TRANSACTION SET (Continued)

DTMR GBL Requirement	TS 204 – Data Elements Reference	TS 204 – Data Elements Requiring Qualifiers	Qualifier(s) For Use With The GBL
16. Destination[e]	N101, 02 N201 N301, 02 N401, 02, 03[d] N405, 06	N101 (DE #98) N405 (DE #309)	ST – Ship To S – SPLC
17. Charges to be Billed To	N101, 02, 03, 04 N201 N301 N401, 02, 03[d]	N101 (DE #98) N103 (DE #66) N104 (DE #67)	PF – Party to Receive Freight Bill 10 – DoDAAC or 33 – STA for USAFAC *NAV for NAVMTO, or* MAR for TVCB-Albany
18. Length/Cube of Carrier Equipment Ordered	N501, 03, 05	N505 (DE #216)	M – Metric
19. Marked Capacity of Carrier Equipment Ordered	N502, 05	N505 (DE #216)	M – Metric
20. Car, Truck, or Container Initials and Nos.	N701, 02[f]		
21. Length/Cube of Carrier Equipment Furnished	N708, 09, 15	N709 (DE #184)	Existing Codes
22. Marked Capacity of Carrier Equipment Furnished	N703, 04	N704 (DE #187)	Existing Codes

* Codes to be added to the standard

[d] The use of separate CITY, STATE, and ZIP CODE Fields is preferred over free form addresses

[e] If the shipment contains STOP OFFS, then the final destination should be in the stop-off loop

[f] If no equipment number is available, write "NONE" in the N702

Notes: 1. All dates are expressed YYMMDD

2. For the TELINK package, each fixed record ID must contain Fields 1-2, 3-10, and 120, Fields 3-10 contain the SCAC code for all GBLs involving a test motor carrier, or G _____ (where the blanks are the GBLOC code of a test consignee) for all GBLs not involving a test motor carrier

3. DoDAAC: DoD Active Address Code, USAFAC: U.S. Army Finance and Accounting Center, NAVMTO: Navy Material Transportation Office, TVCB: Transportation Voucher Certification Branch

TABLE C-1

CONVENTIONS GOVERNING USE OF THE SHIPMENT INFORMATION TRANSACTION SET (Continued)

	DTMR GBL Requirement	TS 204 – Data Elements Reference	TS 204 – Data Elements Requiring Qualifiers	*Qualifier(s) For Use With The GBL*
23.	Movement Category/Type of Equipment (Mode)	N711	N711 (DE #40)	* See the DTMR for codes[g]
24.	Seal Record	M701, 02, 03, 04, 05		
25.	Stop Offs	S801, 02, 03, 04, 05 S808 S201, 02, 03	S802 (DE #163) S804 (DE #187)	Existing Codes Existing Codes
26.	Date Equipment Furnished	G6201, 02	G6201 (DE #432)	* 64 – Date Equipment Furn.
27.	Date GBL Issued	G6201, 02	G6201 (DE #432)	* 65 – Date GBL Issued
28.	Date of Carrier Pickup	G6201, 02	G6201 (DE #432)	11 – Shipped on This Date
29.	Routing (Via)	R201, 02	R202 (DE #133)	Existing Codes
30.	Transit Shipments/Freight Forwarder Shipments	R201, 02	R202 (DE #133)	* TC – Transit Carrier * PC – Parent Carrier
31.	Driveaway, Truckaway	R210		
32.	Protective Service	H302, 03	H303 (DE #241)	* See DTMR Chapter 34[h]
33.	Hazardous Material	H101, 02, 03, 04, 05 H201, 02	H103 (DE #208)	Existing Codes

* Codes to be added to the standard

[f] There are differences between the DTMR and standard codes

[h] Protective service instructions should also be transmitted free form in H302

Notes: 1. All dates are expressed YYMMDD

2. For the TELINK package, each fixed record ID must contain Fields 1-2, 3-10, and 120, Fields 3-10 contain the SCAC code for all GBLs involving a test motor carrier, or G _ _ _ _ (where the blanks are the GBLOC code of a test consignee) for all GBLs not involving a test motor carrier

TABLE C-1

CONVENTIONS GOVERNING USE OF THE SHIPMENT INFORMATION TRANSACTION SET (Continued)

DTMR GBL Requirement	TS 204 – Data Elements Reference	TS 204 – Data Elements Requiring Qualifiers	Qualifier(s) For Use With The GBL
34. Description of Articles	L501, 02		
35. Freight Classification No.	L501, 03, 04	L504 (DE #23)	Existing Codes
36. Numbers on Packages (TCN)	L501 L506, 07	L507 (DE #88)	* TC – TCN
37. Weights	L001, 04, 05[1]	L005 (DE #187)	Existing Codes T – Tare Wt.
38. Cube	L001, 06, 07	L007 (DE #184)	Existing Codes
39. Number and Kind of Packages	L001, 08, 09	L009 (DE #211)	Existing Codes
40. Freight Dimensions	L401, 02, 03, 04	L404 (DE #90)	Existing Codes
41. Tariff or Special Rate Authority	L701, 02, 03[1]		
42. Estimated Charges	L301, 02, 05, 09 10, 11, 12	L302 (DE #187) L310 (DE #184) L312 (DE #188)	Existing Codes Existing Codes Existing Codes
43. Marks and Routing Instructions	K101, 02		
44. Type of Rate	K101, 02		
45. Reason Not Lowest Cost	K101, 02		

* Codes to be added to the standard

[1] Pallet weight will be included as an additional line item following the last line item using the next sequence number and weight qualifier "T" for Tare Weight

[1] The tariff should be included after the last line item using the same sequence number as Tare Weight

Notes: 1. All dates are expressed YYMMDD

2. For the TELINK package, each fixed record ID must contain Fields 1-2, 3-10, and 120, Fields 3-10 contain the SCAC code for all GBLs involving a test motor carrier, or G _ _ _ _ _ (where the blanks are the GBLOC code of a test consignee) for all GBLs not involving a test motor carrier

3. TCN - Transportation Control Number

APPENDIX D

OPERATIONAL FINDINGS

DoD's test of the use of Electronic Data Interchange (EDI) in transportation business transactions highlighted a number of operational issues and identified several barriers to conducting business electronically. The test showed that the adoption of EDI operations will cause dramatic changes to DoD's transportation procedures and to its freight payment system. This appendix describes the operational findings that substantiate the need for those changes. We present separate findings for each of the test participants: shippers, finance centers, consignees, the management reviewer [Military Traffic Management Command–Eastern Area (MTMC-EA)], the postpayment auditor [General Services Administration (GSA)], and commercial motor carriers.

SHIPPERS

The test included seven shippers, most with automated systems for generating GBLs. However, since those systems are geared towards processing documents, many operational, organizational, and systems changes are necessary before EDI can be implemented. This section describes the operational issues encountered at shipping activities during the test.

While EDI moves information to the user quickly, the value of receiving advance shipment information from DoD shipping activities is open to question. Motor carriers are concerned that the shipment information may not be available in time for workload planning, dispatching, or reducing clerical processing at local terminals. Other private-sector carriers have expressed similar concerns in their use of EDI. The primary cause of that concern is the inability of the shippers to provide complete information on planned shipments. As a result, most carriers have not invested in EDI capability to receive shipment information. During the test, we found that much of the information available at shipping locations depended upon paper-intensive GBL production systems. That situation needs to be corrected. New software application systems now under development by the Military Services and Defense Logistics Agency (DLA) need to include the capability for transmitting

shipment information to motor carriers at least 1 or 2 days in advance of shipment. The potential benefits include reduced processing effort and dispatch labor, improved transportation control, and streamlined operations.

In the test, when MTMC-EA compared the shipment information electronic record with paper copies of the GBL, it found a number of inaccuracies in the electronic transmissions from some test shippers. Again, most of the problems stemmed from the shipper's long-standing, paper-processing systems. For example, at New Cumberland Army Depot, it is not uncommon for handwritten adjustments to be made directly on the GBL. However, in the DoD EDI test, those changes were not reflected in the application system because electronic images of shipment information were constructed at the time the GBL was printed. To solve this problem, a customized input screen was provided by EDI, Inc., a subcontractor to LMI on this test. That screen enabled the shippers to make corrections to the GBL in the microcomputer before transmitting. However, that screen was not able to handle all of the GBL discrepancies.

The key to a successful EDI program is the transmission of accurate data only. Future application systems need to be designed so that completed shipment information records are generated only when information accuracy is assured. In such a design, input terminals may have to be placed at loading and dispatching areas and operational procedures will have to be changed to ensure the accuracy of the application system database and printed GBLs.

Some of the shippers that participated in the test did not have automated systems to generate GBLs. For those shippers, EDI, Inc. developed fill-in-the-blank screens for entering GBLs into the EDI system after the GBLs were manually prepared. Such a procedure is not practical in a live EDI environment. However, available EDI software packages provide stand-alone screen input and print formats for creating documents such as the GBL. Essentially, these packages provide the application system capabilities necessary for adopting EDI concepts at many small, low-volume DoD shipping activities.

The test revealed that consistent, long-standing relationships with motor carrier trading partners are crucial to a successful EDI program. Several test locations already have Guaranteed Freight programs, which provide an ideal trading-partner relationship. Smaller test shippers, however, who award business to

carriers with the lowest tender on file, have difficulty maintaining a consistent volume of transactions with a particular carrier. That situation will impede the implementation of EDI at many DoD shipping locations. Fortunately, DLA has already implemented Guaranteed Freight agreements at its six major depots, and each of the Military Services is also exploring widespread adoption of those concepts.

At most of the test shipping locations, transportation clerks and managers operated the EDI microcomputers. For the most part, they were inexperienced with microcomputers and EDI concepts and required extensive training. EDI, Inc. provided much of that training through a 2-day course on the EDI operations and use of the TELINK software. Considerable on-site assistance also was required. As DoD expands its EDI applications, it must develop a continuous training program for its operational personnel.

To make EDI work, extensive coordination among technical, functional, and management groups was required at each shipping location. As an example, the creation of interface software required functional managers to determine data requirements and operational constraints; central design agencies to provide programming support; and local technical advisors to provide computer systems support.

Even after widespread implementation of EDI at DoD shipping activities, some paper systems will need to be maintained at the shipping points to produce paper-copy GBLs for non-EDI-capable carriers and consignees. In addition, some paper will always be required to move with the shipment, especially shipments of hazardous cargo and those requiring protective service.

Extensive resources will be required to implement EDI at shipping activities. In the test, EDI software required extensive customization to enhance the existing applications systems to allow a meaningful simulation of a "live" EDI environment. Those customized programs highlight the need for application system enhancements, and few shippers were able to make those enhancements during the test.

FINANCE CENTERS

The DoD EDI test included three DoD finance centers: the U.S. Army Finance and Accounting Center (USAFAC), the Marine Corps Transportation Voucher

Certification Branch, and the Navy Material Transportation Office. The USAFAC participated fully in the tests reported herein; the Navy and Marine Corps payment centers' participation has only recently begun.

Since USAFAC's operations are geared towards processing paper, the test EDI software needed to be substantially modified to simulate the processing currently done manually at USAFAC. Those modifications included automating edit checks and reconciling the shipment information standards received from the shipper with the invoice standards received from the carrier. (Additional detail on these customized programs are given in Table E-1 of Appendix E.) The need for these customized programs illustrated the shortcomings inherent in paper systems.

The reconciliation process at USAFAC was a key component of the test. Initial test efforts to reconcile GBL data elements on the Shipment Information standard with invoice data elements of the Freight Details and Invoice standard had only a 10 percent success rate. Those elements are shown in Appendix A, Figure A-2. The problems stemmed more from data inaccuracies from test shippers than EDI software problems at the payment center. Later in the test, more than 90 percent of the Shipment Information records were successfully reconciled.

Successful reconciliation was achieved only after substantial effort by shipper interface programmers, motor carrier representatives, LMI, and EDI, Inc. The extensive coordination required in this development effort reflects the centralized planning and coordination that is vital to future DoD EDI implementation efforts.

The reconciliation problems and the customized additions required to the EDI software package also indicate a need for system enhancements at USAFAC. Much of the processing that is currently done manually must be automated before EDI can work at USAFAC. However, as with the shippers, we found programming and other technical resources at USAFAC for making these enhancements were in short supply. For that reason, we believe that the resource requirements for implementing EDI are likely to impose considerably greater costs than those for off-the-shelf EDI hardware, software, and telecommunications. Additional development costs will probably include programming time for interface programs and application system enhancements. Ongoing costs will probably include maintenance of dual systems for processing paper and electronic information (not all DoD shippers and

commercial motor carriers will develop EDI capability at the same time), and other telecommunications and software maintenance costs.

Finally, USAFAC personnel assigned to the EDI system test were not familiar either with microcomputers or the EDI software. As they did for the shippers, EDI, Inc., provided a 2-day training course on the EDI applications and use of TELINK software. On-site assistance was also required. Again, as DoD expands its EDI applications, it must develop a continuous training program for its operational personnel.

CONSIGNEES

The DoD test included four consignees, three of which were collocated with shippers. Most of the test consignees had little or no automation for processing inbound GBLs. Current manual procedures at most DoD consignees are labor-intensive and inefficient. As with other participants in the test, successful adoption of EDI techniques presumes automated system capability. To ensure a meaningful test scenario, EDI, Inc. developed such an application system. That system was available for testing at NSC-Charleston for a brief period, and provided improved processing capability for advance shipment information receipt, suspense filing, and discrepancy report monitoring. (Appendix E, Table E-1 provides additional detail on these programs.) The system also:

- Allowed the electronic receipt and printing of advance shipment information from test shippers. This capability dramatically reduced instances of the freight arriving before the advance GBL.
- Automated the suspensing of inbound GBLs pending receipt of the freight. The manual system is inefficient and slow. The EDI, Inc. system replaced manual filing, matching, pulling, and purging procedures with an automated comparison of advance shipment information and freight-receipt documentation through fill-in-the-blank screen input.
- Provided printed report formats to replace manual log procedures for monitoring the discrepancy reporting system.

The EDI, Inc. customized system provides enhanced inbound shipment information processing capabilities and is applicable at many DoD consignees. It also captures both electronic shipment information (through EDI communications) and paper GBL information (through screen input). For those reasons, it is likely that this system or a similar system can be implemented at many DoD consignee

locations. The GBL receipt function may offer the first opportunity to reap the benefits of EDI. In addition, the discrepancy monitoring application is the first step toward developing an EDI claims reporting system.

As found at other test activities, operators of the EDI system have limited experience with microcomputers and EDI software. As DoD expands its EDI applications, it must also expand its training programs.

MOTOR CARRIERS

The application of EDI in the motor carrier industry has centered primarily on providing the Freight Details and Invoice standard to payment centers. Only the larger carriers have developed this capability and, even then, they have tailored it to the requirements of a few large customers. The three carriers that participated in the test have well-developed EDI freight invoicing capabilities.

Only one test carrier, however, could receive the Shipment Information standard. Most motor freight carriers, even those with freight invoicing EDI capability, have chosen not to invest in the capability to receive shipment information. To do so, they would need to make significant changes to their internal operations and EDI applications software. Since commercial and DoD shippers are typically unable to provide accurate shipment information 1 to 2 days in advance, the carriers are reluctant to make those investments even though they would be precluded from reaping the benefits of EDI shipment information receipt. Those benefits may include reducing clerical effort and improving workload planning of equipment, labor, and drivers.

Motor carrier EDI applications are in their infancy. Many carriers have already invested or plan to invest in the electronic transmission of freight invoices. By electronically submitting freight invoices, the test carriers hope to shorten the payment cycle. Although the finance centers are likely to continue to pay bills in the prescribed 30 days, electronic invoicing starts the 30-day payment clock as much as 2 weeks sooner.

MANAGEMENT REVIEW

MTMC-EA, particularly its Management Review Office, played an important role in the test. Personnel from that office compared the data on the Shipment

Information standard with the memorandum copies of the corresponding GBL to determine compliance with GBL preparation and freight routing procedures.

During the test, MTMC-EA received copies of all Shipment Information standards. The data on those standards were printed and compared with corresponding data on hard-copy GBLs mailed under separate cover by the shipping activity. That comparison provided information on the type of automated sorts and edits required and the data discrepancies that can be expected between hard copy and electronic images. These discrepancies fall into three categories:

- *Omitted Data.* These types of discrepancies occurred because the Shipment Information standard was developed to satisfy the requirements of the Defense Traffic Management Regulation (DTMR). However, some GBLs contained additional information which was not included. This situation can be corrected by adding the omitted data to the appropriate field in the shipper interface program.

- *Unavailable Data.* These types of discrepancies occurred when information was not included in the standard because it was not in the shipper's database. That information, which includes such things as seal number and driver signature, are usually handwritten on the GBL after it has been printed. Potential solutions include agreements between users to make that information optional and changes to operational and application systems at the sending activity.

- *Incorrect Data.* Incorrect data discrepancies were the most important and difficult to solve. They include errors in the electronic transmission of vital fields such as total weight or appropriation data. They arise principally because the shipper's application systems and operations are geared towards processing paper. To correct these discrepancies, extensive enhancements to operations, organizational alignment, and application systems appear to be required.

Although in the DoD EDI test these discrepancies occurred infrequently, they still highlight the need for operational improvements at both sending and receiving activities. In addition, by carefully defining their data requirements, users can avoid data deficiencies and, in addition, can minimize telecommunications cost and preserve a strong conventions document.

MTMC-EA's second role in the test was to receive the File Transfer standard from USAFAC. These completed payment records were analyzed for compliance

with shipment history, for their potential use in prepayment audits, and to determine other potential applications.

MTMC-EA found at least two major types of data that may be eliminated to reduce telecommunications costs: free form and irrelevant data. Where automated application systems exist, the exchange of free form information, such as addresses, can be eliminated by using standard codes. DoD and the private sector have already developed and routinely use such codes. It is likely that additional agreements must be reached about the use of codes.

We define irrelevant data as information that is useful to some shipment information users, but not to all. In the paper processing environment, irrelevant data do not present any problems because it has little effect on the cost of generating, mailing, or processing GBLs. However, with EDI, the transmission of irrelevant data unnecessarily increases costs. (Appendix E investigates these costs in greater detail.)

The identification of irrelevant information was found to be difficult in the test. As implementation of EDI occurs in the DoD, users of shipment information will be required to carefully limit their data needs so that shippers provide only necessary data.

POSTPAYMENT AUDITOR

Like MTMC-EA, GSA's role in the test was to receive File Transfer information from USAFAC. The File Transfer standard uses some fields from the Shipment Information standard and others from the Invoice standard. During the test, the File Transfer information was reviewed by GSA to determine whether it satisfied auditing data requirements. GSA concluded that the information it received was not adequate; it is now developing detailed data requirements for the postpayment audit function. These requirements, as with all other user data requirements, will be maintained in a conventions document.

Since GSA does not use automation in carrying out its audits, it printed the File Transfer data and then manually reviewed it. However, the File Transfer standard contains little free-form information, and as a result, the printed data were very difficult to read. As would be expected, EDI concepts can be most productively adopted in an automated environment. Without automation, free-form information

is necessary, and that increases telecommunications costs and, therefore, dilutes the benefits of the electronic exchange.

SUMMARY

A number of tasks must be completed to successfully implement EDI concepts throughout the DoD. Many of them are oriented toward modifying current paper-based business methods and applications systems. They include establishing technical configurations, and developing and maintaining standards and sound operating procedures for an electronic environment. The DoD EDI test revealed that the operational issues are, by far, the most important; they also are the most difficult to solve. Changes to procedures, regulations, organizations, and application systems are necessary.

For the foreseeable future, paper systems will be needed even by those activities at which electronic systems are implemented. Private-sector EDI success stories show that great benefit can be derived from conducting business electronically, but implementation does not occur without training, central coordination, careful planning, and education. The need for coordination and planning extends across organizational boundaries.

APPENDIX E

TECHNICAL FINDINGS

This appendix discusses the technical issues and barriers encountered in the DoD Electronic Data Interchange (EDI) test and identifies the principal technical findings. The findings are presented for each of three major components: hardware, software, and telecommunications.

HARDWARE

The test hardware consisted primarily of a microcomputer. The Logistics Management Institute (LMI) leased 13 AT&T 6300+ microcomputers, including monitor, keyboard, and printer, for use at the 12 DoD test sites and the General Services Administration (GSA). That microcomputer uses the MS DOS 3.1 operating system and is fully IBM-AT compatible. LMI also purchased a maintenance agreement from AT&T for 8:00 a.m. to 5:00 p.m. coverage 5 days a week at each activity. The modems used were 2,400-baud Cleo 2780/3780+ synchronous internal boards. They, along with the communications software package, were purchased as part of an EDI, Inc. subcontract with LMI. The balance of the hardware required for the test – cables, telephone lines, printer ribbons, and printer paper – were supplied by the participating activities, or, where necessary, by LMI. The AT&T microcomputers were found to be fully compatible with the EDI, Inc. software. The findings related to the processing capability of the AT&T microcomputers are presented later in this appendix under throughput analysis.

SOFTWARE

Translation, communications, and interface software were needed for the demonstration test, and much of that software was either purchased or, where possible, leased to minimize implementation time and to make maximum use of already proven software. Only the interface software was developed in-house. The following subsections describe the features, functions, performance, alternatives, customizing requirements, and costs of each of the three types of test software.

Translation

The translation software reformats data transferred from a DoD host computer into or out of the EDI standard. The translation software package used in the DoD EDI test, TELINK, was leased from EDI, Inc. through a formal bidding procedure. TELINK was selected over the software offered by six competitors because it could satisfy the functional requirements of the test and would run on any IBM-compatible microcomputer.

The TELINK software package is designed for use on microcomputers and performs EDI communications for transportation and other applications. During the test, it was used to transmit eight different standards, or translation sets: #204 - Shipment Information, #210 - Freight Details and Invoice, #211 - Freight Details and Invoice Summary, #213 - Inquiry, #214 - Shipment Status Message, #996 - File Transfer #980 - Functional Group Totals, and #997 - Functional Acknowledgment. Only five of the standards were used in the test: Shipment Information, Freight Details and Invoice, Functional Group Totals, File Transfer, and Functional Acknowledgments. (Those five standards and the associated control segments and data dictionary are presented in annexes to Appendix B.)

TELINK is a generalized software package that can be used as a *front end* to another computer or as a *stand-alone* system. In front-end applications, records for an outgoing transaction set are assembled in a host computer and transferred to a the microcomputer in a fixed-field format. In a stand-alone environment, data for the transaction sets can be input directly into the microcomputer using fill-in-the-blank screens. In both situations, the generator program in TELINK transforms the data into a standardized EDI format and transmits those data through the public dial-up network (telephone) to the commercial telecommunications network and ultimately to the receiving activity.

At the receiving activity, the incoming standards are transformed or interpreted from the EDI standard to user-unique formats that can be printed along with exception and management reports. TELINK automatically generates functional acknowledgment messages in the EDI standard format and transmits them back to the sender. Interpreted standard data are also available for transfer to the host computer for general use and storage.

Functional Overview

The following major functions are performed by the TELINK System:

- *Generation* – TELINK builds a data file for each outgoing EDI standard; that file contains the source data needed to produce EDI transaction sets. Data for the file are obtained through a communication link with the host computer or can be created using the microcomputer screen processor. A Generator Log is printed automatically (see Figure E-1). (Note: Because of the length of the figures in this Appendix, they are all published at the end of the Appendix.)

  Using these data files as the input source, the Generator produces output for two files:

  - Functional Acknowledgment Outbound Control File – containing control information relative to each functional group transmitted for generation of the Functional Acknowledgment Report
  - Transmit File – containing outgoing EDI standard data ready for transmission.

  If syntax errors occur, an error report produced during the generation process indicates those data elements not passing the EDI editing criteria. Standards containing editing errors are not placed on the transmit file. (Editing in the host computer is recommended to prevent the transfer of invalid or incomplete data to the microcomputer.)

- *Interpretation* – TELINK uses incoming transaction sets as input to the Interpreter. The Interpreter edits, decodes, and extracts information for subsequent processing and produces an Interpreter Log (see Figure E-2) indicating activity and errors detected, if any. The Interpreter produces output for the following files:

  - Transaction Set Data Files – used to print reports of incoming standards and to send those data to the host computer
  - Functional Acknowledgment Data File – used to generate a Functional Acknowledgment standard to be sent back to the carrier
  - Functional Acknowledgment Inbound Control File – used in the Functional Acknowledgment reconciliation function.

- *Screen Input* – Data for outgoing transaction sets can be prepared directly on the microcomputer for input to the generator.

- *Functional Acknowledgment Reconciliation* – The Functional Acknowledgment Outbound Control File (an indication of the EDI

standards transmitted to the communicating party) is reconciled with Functional Acknowledgment Inbound Control File (an indication of EDI standards received by the communicating party) and a report is printed (see Figure E-3).

To accomplish the above functions, TELINK incorporates the following additional key features:

- *Table-Driven Translation* – Tables are used to link EDI data elements to standard data segments and standards. This type of design accommodates the addition of new standards through modular table additions.
- *Menu-Driven Operation* – All TELINK functions are controlled through a hierarchy of 11 menus, which allow quick access to all functions.
- *Automatic Recovery* – In the event of an interruption in power or communications, TELINK uses a series of checkpoints to ensure that the system will restart processing after the last successfully completed function. This feature is especially useful in high-volume applications.
- *Archiving* – TELINK permits previously processed data to be generated on diskettes for storage. Archived data may be restored to the microcomputer at any time.
- *Data Security* – TELINK is compatible with most encryption boards currently available for microcomputers. In addition, the front-end approach eliminates the need for outside access to the host system.
- *Automatic Dialing* – TELINK automatically dials, connects, and transmits or receives information through the EDI network.
- *Data Print Routines* – TELINK provides the capability to print transmitted standards and identify errors. Figures E-4 and E-5 illustrate the Shipment Information and Invoice print formats.
- *Report Print Routines* – TELINK provides printed statistical reports for management use (see Figure E-6).
- *Unattended Operations* – TELINK can be directed by the user to conduct all EDI operations without human intervention through the use of an automatic timer for control.

These functions and features of the TELINK system provide a complete processing capability for EDI tasks. In the DoD EDI test, however, extensive customization and supplemental programming had to be developed by EDI, Inc. to add application capability where users' systems were insufficient (see Table E-1).

TABLE E-1

TELINK CUSTOMIZED PROGRAMS

Test site	Application requirement	Specifications
All	Statistical Report for Test Evaluation (See Figure E-6)	Printed report format includes: • Source or destination of transmissions • Transaction set code (i.e., 204, 210, etc.) • Quantities by day and month • Number of transaction sets processed • Number of characters processed
Shipper	Copy and multiple address shipment information records	• Always provide a copy to MTMC-EA • Make copy for carrier if a test participant • Make copy for finance center if carrier is a participant • Make copy for consignee if a test participant
All	Technical links to host computers	• Establish communications with host • Provide communications software and modems as needed • Provide flat file for upload to host
Shipper (New Cumberland Army Depot only)	Modify GBL before transmission	• Correct changes made to paper in microcomputer before transmission to users. Use random access techniques to "call" for and modify select shipment information records.
Consignee	Provide automated suspense capability	• Input screen to capture key data from hard copy GBLs for automated suspense or update existing record ▸ GBL number ▸ Shipper ▸ SCAC ▸ Dates – GBL receipt – Actual delivery – Request for Information (RFI) – RFI follow up – Transportation Discrepancy Report (TDR) – TDR follow up ▸ Status code

Note: MTMC-EA: Military Traffic Management Command, Eastern Area; GBL: Government Bill of Lading; SCAC Standard Carrier Alpha Code

TABLE E-1

TELINK CUSTOMIZED PROGRAMS (Continued)

Test site	Application requirement	Specifications
Consignee	Provide automated log for monitoring TDRs	• Print format for monitoring outstanding shipments ▸ Part 1 RFI/TDR/Research Required. (See Figure E-8.) ▸ Part 2 RFI Follow Up and TDR Required. (See Figure E-9.) ▸ Part 3 TDR Follow Up Required. (See Figure E-10.) ▸ Part 4 Received and Action Required. (See Figure E-11.) ▸ Part 5 Active Shipments. (See Figure E-12.)
Finance Center	Reconcile shipment information and invoice records	• Compare the following fields and provide printout: ▸ SCAC ▸ GBL number ▸ Dates ▸ Total pieces ▸ Total weight ▸ Total cube ▸ Total charges • Provide screen for changing allowable thresholds for dollar and percentage variances. • Provide comparison codes on printout to highlight variances. (See Figure E-13.)
Finance Center	Conduct edit checks and combine shipment information and invoice records into flat file for upload to host	• Check shipment information for presence of ▸ SCAC ▸ Consignee GBLOC ▸ Destination ▸ Commodity description • Prorate appropriation numbers by weight • Create file of unreconciled shipment information records and print report. (See Figure E-14.) • Conduct value added edits ▸ Add billed amount code ▸ Add freight classification code ▸ Check carriers billing unit code

Note: GBLOC: Government Bill of Lading Office Code

TABLE E-1

TELINK CUSTOMIZED PROGRAMS (Continued)

Test site	Application requirement	Specifications
Finance Center (continued)		• Print GBL/Freight Bill Edit Report. (See Figure E-15.) • Print combined records. See (Figure E-16.)
Finance Center	Construct file transfer information for transmission to GSA and MTMC-EA from combined shipment information and invoice records	• Generate flat file record for upload to host into file transfer transaction set • Make copy and transmit to GSA and MTMC-EA
Finance Center	Provide selective printing capability	• Allow printing of selected shipment information or invoice records by referencing GBL number and extracting from files.
MTMC-EA	Sort shipment information records by source	• Automatically sort shipment information records by shipper prior to printing.
GSA/MTMC-EA	Print file transfer data	• Provide print format for all data received in file transfer
All	Duplicate record control	• Provide capability to detect generation of identical transaction sets and interpretation of multiple invoice records for same shipment information.

TELINK Performance

The TELINK package has been proven in more than 450 commercial applications. In the DoD EDI test, very few problems were encountered in the standard TELINK functions and features. In addition, TELINK is fully compatible with the EDI standards and other software packages encountered in the DoD EDI test, with a few minor exceptions. However, the customized and supplemental programs created by EDI, Inc. required extensive testing and revision. While EDI, Inc. provided full support to resolve these difficulties, they required a great amount of time and resources.

A key aspect of the performance of the TELINK package is the speed at which transactions can be processed using various microcomputer configurations. EDI data throughput analysis tests were conducted for shipper and finance center applications, using 8-MHz and 16-MHz microcomputers. Tables E-2 and E-3 show the results of those tests.

The throughput analysis was conducted to provide guidelines for selecting optimum EDI technical configurations at DoD shipper and finance center (or any user) activities. In designing the throughput test, we imposed the following conditions:

- Large data files were constructed. Since operation of the TELINK package requires some fixed processing time, use of a large data file minimizes the effects of the fixed-time routines on overall TELINK performance.
- Only pure EDI functions were measured. Flags were set in TELINK to identify processing time spent on each TELINK subroutine in order to separate customized application programs and other programs not likely to be part of a live EDI system from test-related processing routines.
- Download/upload functions were not tested because their time requirements are directly related to the baud rate used between host and microcomputers. Furthermore, these functions do not occur in mainframe or stand-alone EDI configurations.
- Telecommunications were not tested because its time requirement is a direct function of transmission speed and protocol. In addition, a telecommunications capability is necessary in any EDI technical configuration.
- Various microcomputer processors were tested. The TELINK package is designed for operation on all IBM-compatible microcomputers. However, many microcomputers use different speed processors. These speeds are measured in megahertz (MHz). The processors used in the throughput test were IBM-AT compatible 8-MHz microcomputers and a sophisticated 16-MHz Compaq 386 microcomputer.

While only TELINK was involved, the throughput tests can provide estimates for the EDI processing capabilities of the hardware tested. In addition, generalities about other translation software packages can be made. Because of the special conditions of the throughput test, and anticipated advances in microcomputer hardware and software, the conclusions should be used only as guidelines.

TABLE E-2

TELINK THROUGHPUT TEST
SHIPPER APPLICATION

Function/description	EDI requirement	Processing time[a]	
		8 MHz	16 MHz
Download Transfer fixed record detail from host	Constant, function of baud rate (not necessary in mainframe environment)	Not tested	Not tested
EDI Translation Generate Shipment Information standards	Necessary EDI function	14:54	9:15
Collect operating statistics Prepare data for EDI Management Report	Necessary EDI function	2:00	2:06
Create files Prepare data files for printing and archiving	Necessary EDI function	1:00	1:00
Redirect and multiple address shipment information records Make user copies and address for transmission	Necessary EDI function in multiple-user copy environment	5:00	4:00
Telecommunications Transmit Shipment Information standards and receive functional acknowledgments	Constant, function of telecommunications speed and protocol	Not tested	Not tested
Interpret functional acknowledgments and conduct additional processing including collection of statistics for reports and creation of files	Necessary EDI function	4:21	3:14
Total		27:15	19:35
File Information	Number of shipment information records before copies after copies	 93 records 290 records	 109 records 365 records

[a] Processing time in minutes and seconds unless noted

TABLE E-2

TELINK THROUGHPUT TEST
SHIPPER APPLICATION (Continued)

Function/description	EDI requirement	Processing time	
		8 MHz	16 MHz
File Information (Continued)	Number of characters in flat file records (before copies)	466,704	543,022
	Number of characters in compressed records (after copies)	320,591	467,322

Sender (Shipper) Analysis. In a microcomputer, front-end, EDI environment, three main tasks are performed in daily operations: downloading data from the host computer, processing and translation, and telecommunications. The throughput tests addressed only the processing and translation function. However, downloading and telecommunications times can be estimated by choosing probable baud rates.

Analysis of the test results calculated in Table E-4 leads to the guidelines in Table E-5 for a large DoD shipper (assuming 500 GBLs per day).

The differences in total processing time between 8-MHz and 16-MHz microcomputers are entirely due to the translation function. The 16-MHz microcomputer can conduct EDI translation processing 39 percent faster than an 8-MHz microcomputer. However, the 16-MHz machine provides only 16 percent additional throughput capability when the downloading and telecommunications functions are considered. Many DoD activities already have invested in 8-MHz Zenith 248 microcomputers as part of major hardware procurements. For these reasons, 500 GBLs per day will likely require 5.95 hours of processing time. These results indicate that the largest DoD shipper will require six to eight EDI communications sessions each day at 3- or 4-hour intervals. (The total throughput was divided into the number of EDI sessions to limit telecommunications to 30 minutes or less, which is used frequently in the private sector to minimize the risk of telecommunications failure.) However, while this scenario theoretically could work, the microcomputer would be near its processing limits. Unusual peaks in

TABLE E-3

TELINK THROUGHPUT TEST
FINANCE CENTER APPLICATION

Function/description	EDI requirement	Processing time[a]	
		8 MHz	16 MHz
Telecommunications Receipt of data in standard through modem	Constant, function of telecommunications speed	Not tested	Not tested
EDI Translation Interpret shipment information and invoice data	Necessary EDI function	48	20
Collect operating statistics Gather data for EDI Management Report	Necessary EDI function	2	1
Create files Prepare data files for printing and archiving	Necessary EDI function	2	1
Prepare functional acknowledgments Gather information for generation of functional acknowledgments in next communications session	Necessary EDI function	1	1
Conduct edit checks and capture shipment information data Complete customized edit checks and limited corrections Gather shipment information for comparison within voice data	Application Program function, not an EDI function	16	6
Control and file maintenance Purge appropriate files Set flags Other software maintenance	To be eliminated in next version of TELINK	15	6

[a] Processing time in minutes unless noted

TABLE E-3

TELINK THROUGHPUT TEST FINANCE CENTER APPLICATION (Continued)

Function/description	EDI requirement	Processing time[a]	
		8 MHz	16 MHz
Reconciliation and combining of shipment information and invoice records (Table E-2 Customized Programs contains additional detail)	Application Program function, not an EDI function Random access not employed	110	88
Generate Functional Acknowledgments and File Transfer Records Generate Functional Acknowledgment transaction set for transmission Generate statistics and create files for printing and archiving	Necessary EDI function	14	7
Telecommunications Transmission of file transfer and functional acknowledgment information generated above	Constant, function of telecommunications speed and protocol	Not tested	Not tested
Upload Transfer fixed record detail to host	Constant, function of baud rate (not necessary in mainframe or stand alone environments	Not tested	Not tested
Total	Includes all functions from above	208	130
Necessary EDI functions	Likely microcomputer functions	67	30
File Information	Number of shipment information records received	103 records	103 records
	Number of invoice records received	249 records	249 records
	Number of functional group totals records received	37 records	37 records

[a] Processing time in minutes unless noted

TABLE E-3

TELINK THROUGHPUT TEST FINANCE CENTER APPLICATION (Continued)

Function/description	EDI requirement	Processing time	
		8 MHz	16 MHz
	Number of characters per compressed record	313,356 characters	313,356 characters

volume, or downtime to the application system, EDI system, or telecommunication network, could not be absorbed. Furthermore, additional EDI applications could not be undertaken.

The analysis shows that large shipping activities will need to assess their anticipated volumes, operational constraints, proposed EDI applications, and other internal unique issues when selecting an EDI hardware/software configuration. The options available to those activities include housing the EDI software on a mainframe or minicomputer application system; on a front-end microcomputer or minicomputer; or on a local area network of microcomputers. It is likely that the 20 or so largest DoD shippers – the wholesale depots – will require more than a front-end microcomputer for EDI processing.

User (Finance Center) Analysis. In the DoD EDI test, the finance center had to perform three major functions: telecommunications, translation and processing, and uploading. Based on the test results shown in Table E-4, we developed the guidelines presented in Table E-6 for each of these functions at a large DoD finance center. [The volume at DoD's largest finance center, the U.S. Army Finance and Accounting Center (USAFAC), was factored into the guidelines.]

Since a total processing time cannot exceed 24 hours a day, the microcomputer front-end approach at USAFAC will not work. The guidelines clearly show that DoD finance center applications will likely require a minicomputer or a mainframe to reduce translation processing time and eliminate the need for an upload. As with the shipper application, the technical configuration of the EDI system at each finance center will likely be determined by local operational and technical issues.

TABLE E-4

TELINK THROUGHPUT TEST RESULTS

Task	Calculations	Comment	Rates/Values for Various Hardware		
			8 MHz	16 MHz	Average
Shipper Application					
Calculate time to generate Shipment Information records from flat file format and transmit and conduct all EDI processing	8 MHz: 466,704 C/27:15 minutes 16 MHz: 543,022 C/19:35 minutes 8 MHz: 93 GBLs/27:15 minutes 16 MHz: 109 GBLs/19:35 minutes	Calculation of the number of GBLs processed in an hour is subject to assumptions about the number of characters per GBL record described below	17,127 CPM 205 GBL/Hr	27,729 CPM 334 GBL/Hr	N/A N/A
Characters per fixed record of Shipment Information	8 MHz: 466,704 C/93 GBLs 16 MHz: 543,022 C/109 GBLs	Characters per GBL (C/GBL) is a function of the conventions used, and is therefore subject to reduction as data requirements are refined.	5,018 C/GBL	4,982 C/GBL	4,999 C/GBL
Characte s per Shipment Informat on (compressed) record	8 MHz: 290–204s/93 GBLs 16 MHz: 365–204s/109 GBLs	(See above comment)	1,105 C/204	1,280 C/204	1,203 C/204
Copies of Shipment Informat on standard made per GBL record	8 MHz: 290/93 GBLs 16 MHz: 365/109 GBLs	These values assume MTMC, finance center, motor carrier and consignee participation are the same as in the test	3 19/GBL	3 35/GBL	3 24/GBL
Length of fixed record GBL compare J with compressed record Shipment Informat on	4,999 C/GBL; 1,203 C/204	—	N/A	N/A	4 15/GBL
Characters per Functional Acknowledgment	60,141 C/372 997	Values from compiled test operating statistics	N/A	N/A	162 C/997

TABLE E-4

TELINK THROUGHPUT TEST RESULTS (Continued)

Task	Calculations	Comment	Rates/Values for Various Hardware		
			8 MHz	16 MHz	Average
Finance Center Application Processing time to interpret shipment information and invoice records from the standard format to fixed length records, conduct telecommunications, and complete EDI processing	8 MHz: 313,356 C/67 minutes 16 MHz: 313,356 C/30 minutes	Excludes processing time for all application programs (such as reconciliation) on the microcomputer	4,677 CPM	10,445 CPM	N/A
Characters per Freight Details and Invoice standard	226,788 C/298 210	Values from compiled test operating statistics	N/A	N/A	761 C/210
Processing time for combined Shipment Information and invoice transactions to be interpreted from the standard format to fixed length records, conduct telecommunications, and complete EDI processing	1,203 C/204 + 761 C/210 = 1,964 C/transaction 8 MHz 4,677 CPM/1,964 C/transaction 16 MHz: 10,445 CPM/1,964 C/transaction	Assumes one to one relationship between Shipment Information and invoice records Characters per record are a function of the conventions used Therefore, they are subject to change as data requirements are refined	2.38 transactions/ minute	5.32 transactions/ minute	N/A

TABLE E-5

DoD SHIPPER THROUGHPUT GUIDELINES

EDI Function	8-MHz Processing Time (Per Day)	16-MHz Processing Time (Per Day)
Download[a]	0.43 hr	0.43 hr
Translate[b]	2.45 hr	1.5 hr
Telecommunications[c]	3.07 hr	3.07 hr
Total	5.95 hr	5.0 hr

[a]Download calculation (assuming 19,200 baud, or 1,600 CPS)

$$\frac{4{,}999\ C/GBL \times 500\ GBLs/day}{5{,}760{,}000\ CPH} = 0.43\ hr/day$$

[b]Translation calculation

$$8\ MHz: \frac{500\ GBLs/day}{204\ GBLs/hr} = 2.45\ hr/day \quad 16\ MHz: \frac{500\ GBLs/day}{334\ GBLs/hr} = 1.5\ hr/day$$

[c]Telecommunications calculation (assuming 2,400 baud, or 200 CPS)

$$\frac{(1{,}203\ C/204 + 162\ C/997) \times 500\ GBLs/day \times 3.24\ 204/GBL}{720{,}000\ CPH} = 3.07\ hr/day$$

TABLE E-6

FINANCE CENTER THROUGHPUT ANALYSIS

EDI Function	8-MHz Processing Time (Per Day)	16-MHz Processing Time (Per Day)
Telecommunications[a]	2.38 hr	2.38 hr
Translation[b]	41.95 hr	18.8 hr
Upload[c]	5.21 hr	5.21 hr
Total	49.54 hr	26.39 hr

[a]Telecommunications calculation (assuming 19,200 baud, or 5,760,000 CPS)

$$\frac{1{,}203\ C/204 + 761\ C/210 + 2(162\ C/997) \times 6{,}000\ GBLs/day}{5{,}760{,}000\ CPH} = 2.38\ hr/day$$

[b]Translation calculation

$$8\ MHz: \frac{6{,}000\ GBLs/day}{143\ 204-210/hr} = 41.95\ hr/day \quad 16\ MHz: \frac{6{,}000\ GBLs/day}{319\ 204-210/hr} = 18.80\ hr/day$$

[c]Upload calculation (assuming 19,200 baud, or 5,670,000 CPH) and 4,999 C/payment record)

$$\frac{4{,}999\ C/payment\ record \times 6{,}000\ GBLs/day}{5{,}760{,}000\ CPH} = 5.21\ hr/day$$

Summary

The TELINK package was very effective as a front-end EDI translation software package for medium and larger DoD activities with some level of application system capability. It can be leased for a one time cost of $2,600 plus $300 per standard and $750 per year for maintenance. The TELINK microcomputer translation package is the industry leader. It has many features, strong processing capability, and established "hot line" support. While TELINK functioned very well in the test, mainframe or minicomputer packages may be necessary at the largest DoD activities and other microcomputer packages may be better at low volume, stand-alone activities.

Interface

The interface software creates files for downloading or uploading data between the microcomputer and the activity's mainframe application system. That software, which was developed for each test activity jointly by EDI, Inc. and local programmers, creates data files of GBL information in a format prescribed in the TELINK documentation. The TELINK documentation uses fixed-length, sequential record formats to specify the order and positions of data to be transferred. Figure E-7 shows an example of this format for a data segment of the Shipment Information standard.

In the DoD EDI test, interface programming was conducted by systems personnel familiar with the activity's application system. The DLA, Army, Navy, and Air Force employed their respective central design agencies to complete much of the interface programming. This approach maximizes the exportability of the interface program to other activities using the standard application system. Another advantage of the central design approach is that is establishes a focal point for EDI within the organization, for both software maintenance and knowledge of EDI concepts. Those focus points will become especially important as EDI is expanded to other activities.

Significant in-house programming effort, ranging from 10 to 75 man-days, was required to complete these interfaces. All interface programming efforts required at least two iterations before the requirements of the EDI standards and conventions could be satisfied.

Communications

Communications software ensures the technical compatibility of the mainframe application system with the test microcomputer in the front-end environment. Communications software packages are required on both the mainframe and microcomputer to transfer the interface files. The communications packages used in the test enabled the microcomputer to emulate the technical parameters of the outside telecommunications network as well as the mainframe application system. These software packages are available from commercial software vendors and, for the DoD EDI test, were purchased through EDI, Inc.

The two packages used in the test were Cleo 2780/3780+ and Crosstalk. The 2780/3780+ package provides synchronous communications capability using IBM 3780 protocol. Its price was approximately $1,200, which included a 2,400-baud synchronous internal modem board. Crosstalk is an asynchronous communication package that costs about $150. LMI purchased 1,200-baud modems for use in conjunction with Crosstalk.

Few problems were encountered in establishing communications with test host systems. Mainframe port availability determined which communications package was required. Only one host computer in the test required additional software for communications – the Tandem minicomputer at the Naval Supply Center, Norfolk. The reasons for the difficulty in establishing a communications link with the test microcomputer were largely security related. Communications to the public network were conducted using 2780/3780+ at most test activities.

TELECOMMUNICATIONS

The private sector uses direct and third-party approaches for conducting EDI telecommunications. The direct communications approach is used in applications calling for high-volume exchanges between a few large trading partners and avoids the costs of Value Added Network (VAN) processing. The third-party, or VAN, approach provides EDI services such as message distribution, electronic mailboxing, protocol conversion, and other services. It is commonly used in multiple trading partners situations.

We selected the VAN approach for the test because the test was designed for daily communications between multiple test activities with various communications

approaches in volumes that did not warrant direct communication. This approach allowed each activity to transmit all test data in one daily communications session to the VAN.

McDonnell Douglas Corporation (MDC) provided the VAN services. Its participation was negotiated through EDI, Inc. Each commercial EDI telecommunications network, such as MDC's, has two major components: communications and network services.

Communications

Communications is the packaging, addressing, and moving of data electronically. Capabilities to carryout these functions are available from the Defense Data Network (DDN) and a number of commercial networks. The MDC telecommunications network, TYMNET, is a multinode, packet-switching network similar to the DDN that uses X.25 protocol to transfer data between nodes. TYMNET has 600 nodes in 69 countries. Access to TYMNET is through local dial-up, 800 numbers, or direct connection. TYMNET supports multiple protocols and has established connections with other commercial networks. While network interconnectivity has been identified as a problem in other EDI pilot programs, few problems were encountered in the DoD EDI test. In the test, MDC successfully communicated with companies not subscribing to its network. For instance, Consolidated Freightways, a private motor carrier, communicated with MDC using its in-house telecommunications capability. MDC also connected successfully with Kleinschmidt, one of its competitors, during the test. In fact, MDC has established connections with many of its competitors.

Network Services

Network services include all EDI value added services related to message handling and distribution. MDC VAN services included electronic mailboxing, distribution of EDI messages, customer service, and customized data processing. The MDC VAN Service, located in St. Louis, receives EDI transactions through TYMNET or direct 800 number telephone access. Those transactions are then distributed by customer and filed in electronic mailboxes for later access by the receiver. Messages for users not on the MDC network are passed through to another network or recipient at re[illegible] intervals. Only the headers and trailers of the EDI

data moving through the MDC network are read or processed by MDC. However, if a customer asks for additional data processing, MDC can provide that support.

MDC was found to be an experienced vendor of EDI services. Although we did encounter some problems with its synchronous communications, those problems were more than offset by MDC's strong commitment to customer service. Overall, MDC satisfied DoD's telecommunications requirements for the test. VAN capacity limitations are of some concern in a widespread DoD EDI application, but we did not investigate them during the test.

The test provided some guidelines for estimating telecommunications costs. The MDC retail cost structure has fixed and variable components. The fixed component is $100 per month per mailbox. The variable component includes sender, processing, and receiver charges of $0.30 per thousand characters (KC) for a total charge of $0.90/KC. Other commercial networks have different pricing approaches, but the total retail charges are approximately the same.

From the throughput analysis, we estimate that each Shipment Information standard processed during the test contained 1,203 characters. If we add 162 characters per functional acknowledgment, each shipment transaction totals 1,365 characters. At $0.90/KC, each shipment transaction cost $1.23/GBL copy. Since 3.24 copies of each GBL were generated during the test, the total cost for electronically transmitting each GBL was $3.99. That cost is substantially higher than the cost to mail paper GBLs. However, the test revealed a number of ways to dramatically reduce telecommunications costs.

- All transmissions during the test occurred during prime business hours. MDC offers a $0.20/KC price for sending, processing, and receiving transmissions during off-peak hours, a 33 percent reduction.
- Test shipment information records contained all of the data requirements of the Defense Traffic Management Regulation. In future EDI efforts, users will need to define their data requirements so that shippers send only that information. In addition, free-form information should not be transmitted when codes are available.
- The test volume did not warrant volume price concessions from MDC. In addition, MDC and other commercial networks will likely reduce their costs even further to attract DoD business.

- The DDN could provide the sender and receiver portions of the MDC service, which would result in only processing charges being billed.

If these actions are taken, the telecommunications cost per GBL will be substantially lower than the $1.23 experienced in the test. However, other telecommunications charges for the receipt of shipment information and transmission of file transfer records would also be incurred in a live environment. The guidelines presented in this appendix are not intended to yield an operational estimate of telecommunications costs in a live EDI environment, but to identify the factors that affected telecommunications costs during the test.

SUMMARY

The DoD EDI test provided a number of important guidelines for use in implementing a technical configuration for conducting DoD business electronically. Factors that influence selection of the optimal approach at each activity include volume, application system capability, operations, data requirements, and telecommunications. While a significant debugging period should be expected, the technical issues surrounding implementation of EDI are tractable. Proven hardware, software, and telecommunications packages for EDI are, for the most part, available commercially. Larger operational and application systems issues will require extensive strategic planning and analysis.

GENERATOR LOG
10-02-1987 11:07:26

```
GENERATING TRANSACTION SETS FOR:  ALBANY    U S MARINES        ALBANY          CTL. NO.:        1
GROUP CTL. NO.:     10008
   ST*997*10008001              REFERENCE NO.:   10157
   ST*997*10008002              REFERENCE NO.:   10158


GENERATING TRANSACTION SETS FOR:  CAMP LEJEUNE        LEJEUNE          CTL. NO.:        4
GROUP CTL. NO.:     10009
   ST*997*10009001              REFERENCE NO.:   10210
   ST*997*10009002              REFERENCE NO.:   10211
   ST*997*10009003              REFERENCE NO.:   10212
   ST*997*10009004              REFERENCE NO.:   10213
```

FIG. E-1.

INTERPRETER LOG
10-02-1987 11:03:39

```
INTERPRETING ID CODE:  ALBANY     U S MARINES                              CTL. NO.: 157
 GROUP CTL. NO.:     10157        VERSION=M2/2
   ST*204*101570001               SHIPMENT ID NO.: 00C05554684
   ST*204*101570002               SHIPMENT ID NO.: 00C0555469[illegible]
   ST*204*101570003               SHIPMENT ID NO.: 00C[illegible]
   ST*204*101570004               SHIPMENT ID NO.: 00C05554691

INTERPRETING ID CODE:  ALBANY     U S MARINES                              CTL. NO.: 152
 GROUP CTL. NO.:     10152        VERSION=M2/2
   ST*204*101520001               SHIPMENT ID NO.: 00C05554650
   ST*204*101520002               SHIPMENT ID NO.: 00C05554660

INTERPRETING ID CODE:  6.8*MT     CAMP LEJEUNE                             CTL. NO.: 310
 GROUP CTL. NO.:     10310        VERSION=M2/2
   ST*204*103100001               SHIPMENT ID NO.: C0054187
   ST*204*103100002               SHIPMENT ID NO.: C0054186
   ST*204*103100003               SHIPMENT ID NO.: C0054175
   ST*204*103100004               SHIPMENT ID NO.: C0054179

INTERPRETING ID CODE:  6.8*MT     CAMP LEJEUNE                             CTL. NO.: 317
 GROUP CTL. NO.:     10317        VERSION=M2/2
   ST*204*103170001               SHIPMENT ID NO.: C0054184
   ST*204*103170002               SHIPMENT ID NO.: C0054194
   ST*204*103170003               SHIPMENT ID NO.: C0054183

INTERPRETING ID CODE:  6.8*MT     CAMP LEJEUNE                             CTL. NO.: 323
 GROUP CTL. NO.:     10323        VERSION=M2/2
   ST*204*103230001               SHIPMENT ID NO.: C0054175
   ST*204*103230002               SHIPMENT ID NO.: C0054175

INTERPRETING ID CODE:  6.8*MT     CAMP LEJEUNE                             CTL. NO.: 327
 GROUP CTL. NO.:     10327        VERSION=M2/2
   ST*204*103270001               SHIPMENT ID NO.: C0054174
   ST*204*103270002               SHIPMENT ID NO.: C0054197
   ST*204*103270003               SHIPMENT ID NO.: C0054211
```

FIG. E-2.

COMMUNICATIONS (Functional Acknowledgement) REPORT

Report Date and Time
NOV 5, 1986; 19:56

PART 1. OUTBOUND MESSAGES

	FUNCTIONAL GROUPS SENT					ACKNOWLEDGEMENTS RECEIVED			
ADDRESSEE	FUNCTIONAL ID	CONTROL NO.	DATE SENT	TIME SENT	SETS SENT	ACKNOWLEDGEMENT DATE	TIME	SETS RECEIVED	SETS ACCEPTED
GENERAL SERVICES ADM	CG	1132	861105	1952	1				

PART 2. INBOUND MESSAGES

	FUNCTIONAL GROUPS RECEIVED					ACKNOWLEDGEMENTS SENT			
SENDER	FUNCTIONAL ID	CONTROL NO.	DATE SENT	TIME SENT	SETS SENT	ACKNOWLEDGEMENT DATE	TIME	SETS RECEIVED	SETS ACCEPTED
CONSOLIDATED	IM	1002	861021	1215	4	861105	1953	4	4
ROBINS AFB	FM	1026	861009	0841	5	861105	1954	5	5

FIG. E-3.

SHIPMENT INFORMATION
(Printed NOV 05, 1986)

Party: ROBINS AFB
ID: ROBINS

Origin EDI Carrier: CFWY

Shipment ID no: T3462618 Rep. pattern no: 0 Ship. pymt. meth: ZZ
Total equipment: 0

AUTHENTICATION:
Authority ID: IO Auth. date: 860305 Authority: J R HARLEY MAJ USAF
AUTHENTICATION:
Authority ID: GB Auth. date: 860305 Authority: CFFQ
PRIORITY:
Priority: 0 Priority code: 3
REFERENCE:
Reference no: AP Date: Time: 0000
Description: F8A063J
NAME AND ADDRESS:
SF ROBINS AFB GA 31098-5999 Id:

GEOGRAPHIC LOCATION: S 463524
NAME AND ADDRESS:
SH WARNER ROBINS ALC Id:
ROBINS AFB GA 31098-5999

NAME AND ADDRESS:
CN TRANSPORTATION OFFICER Id: 21 JEAH
MTMC PNW OUTPORT
4735 E. MARGINAL WAY SOUTH SEATTLE WA 98134-2391

NAME AND ADDRESS:
ST SEATTLE WA 98134-2391 Id:

GEOGRAPHIC LOCATION: S 845200
NAME AND ADDRESS:
PF TRANSPORTATION DIVISION Id: 33 STA
US ARMY FINANCE & ACCOUNTING

EQUIPMENT DETAILS:
Equip. number: NONE Tare weight: 0 Wgt. allowance: 0
Dunnage: 0 Equip. dsc. cd: AV Equip. length: 0
Eq. no. ck. dgt: 0 Volume: .0 Unit qualifier:
Weight: .0 Qualifier:
DATE/TIME:
Date qualifier: 55 Date: 860305

LINE ITEMS

REFERENCE:
Reference no: AP Date: Time: 0000
Description: F8A063J

FIG. E-4.

LINE ITEMS

DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 1 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240051351353 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 1 Billed/rated-as quan: 0 Qualifier:
Weight: 32.0 Qualifier: E Volume: 1.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS
REFERENCE:
Reference no: AP Date: Time: 0000
Description: FBA063J
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 2 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240051121288 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 2 Billed/rated-as quan: 0 Qualifier:
Weight: 200.0 Qualifier: E Volume: 12.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS
REFERENCE:
Reference no: AP Date: Time: 0000
Description: FBA063J
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 3 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240060081290 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 3 Billed/rated-as quan: 0 Qualifier:
Weight: 64.0 Qualifier: E Volume: 2.0 Unit qual: E
Lading quantity: 2 Qualifier: PCS
REFERENCE:
Reference no: AP Date: Time: 0000
Description: FBA063J
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 4 Lading desc: ELEC EQUIP GP, CABLE ASSEMBLIES OR
Commodity code: 06113000 Qualifier: N Packaging code:
Marks and numbers: FB500460570097 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 4 Billed/rated-as quan: 0 Qualifier:
Weight: 338.0 Qualifier: E Volume: 9.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS

FIG. E-4. (Continued)

Shipment Information for Shipment Number T3462618 ...continued

LINE ITEMS

TOTAL WEIGHT AND CHARGES:

Weight:	634.0	Qualifier: E	Unit qualifier: L
Freight rate:	. 0	Qualifier:	
Charge:	221.00		
Advances:	. 0		
Prepaid amount:	. 0		
Volume:	24.0	Unit qualifier: E	
Lading quantity:	5		

REMARKS: FOR EXPORT
REMARKS: CARRIER MUST PH 206 285-2670,
EXT 271, BETWEEN
REMARKS: THE HOURS OF 0800-1500 FOR DEL
IVERY INSTRUCTIONS
REMARKS: AND LOCAL PERMIT NUMBER NOT LA
TER THAN THE DAY
REMARKS: PRECEDING THE EXPECTED DELIVER
Y DATE.
REMARKS: THIS IS TO CERTIFY THAT THE HE
REIN NAMED ARTICLES
REMARKS: ARE PROPERLY CLASSIFIED, DESCR
IBED, PACKAGED,
REMARKS: MARKED, LABELED, AND ARE IN PR
OPER CONDITION FOR
REMARKS: TRANSPORTATION ACCORDING TO TH
E APPLICABLE REGU-
REMARKS: LATIONS OF THE DEPARTMENT OF T
RANSPORTATION.

FIG. E-4. (Continued)

FREIGHT DETAILS AND INVOICE
(Printed NOV 05, 1986)

Party: CONSOLIDATED
ID: CFWY

Invoice Number: CFWY-INV-1

Shipment ID no: T3462618 Ship. pymt. meth: ZZ Wt. unit qual: L
Billing date: 861021 Net amount due: 300.00 Delivery date: 861019 Qual: A
SCAC: CFWY

NAME AND ADDRESS:
SF ROBINS AFB GA 31098-5999 Id:

NAME AND ADDRESS:
SH WARNER ROBINS ALC Id:
ROBINS AFB GA 31098-5999

NAME AND ADDRESS:
CN TRANSPORTATION OFFICER Id: 21 JEAH
MTMC PNW OUTPORT
4735 E. MARGINAL WAY SOUTH SEATTLE WA 98134-2391

NAME AND ADDRESS:
ST SEATTLE WA 98134-2391 Id:

NAME AND ADDRESS:
PF TRANSPORTATION DIVISION Id: 33 STA
US ARMY FINANCE & ACCOUNTING

LINE ITEMS

EQUIPMENT DETAILS:
Equip. number: NONE Tare weight: 0 Wgt. allowance: 0
Dunnage: 0 Equip. dsc. cd: AV Equip. length: 0
Eq. no. ck. dgt: 0 Volume: .0 Unit qualifier:
Weight: .0 Qualifier:
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 1 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240051351353 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 1 Billed/rated-as quan: 0 Qualifier:
Weight: 32.0 Qualifier: E Volume: 1.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 2 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240051121288 Qualifier: TC

FIG. E-5.

Freight Details and Invoice Number CFWY-INV-1 ...continued

LINE ITEMS

QUANTITY AND WEIGHT:
Lad. ln. item no: 2 Billed/rated-as quan: 0 Qualifier:
Weight: 200.0 Qualifier: E Volume: 12.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 3 Lading desc: CARRIERS SHIPPING GP, CYLINDERS, FO
Commodity code: 04116002 Qualifier: N Packaging code:
Marks and numbers: FB240060081290 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 3 Billed/rated-as quan: 0 Qualifier:
Weight: 64.0 Qualifier: E Volume: 2.0 Unit qual: E
Lading quantity: 2 Qualifier: PCS
DESCRIPTION, MARKS AND NUMBERS:
Lad. ln. item no: 4 Lading desc: ELEC EQUIP GP, CABLE ASSEMBLIES OR
Commodity code: 06113000 Qualifier: N Packaging code:
Marks and numbers: FB500460570097 Qualifier: TC
QUANTITY AND WEIGHT:
Lad. ln. item no: 4 Billed/rated-as quan: 0 Qualifier:
Weight: 338.0 Qualifier: E Volume: 9.0 Unit qual: E
Lading quantity: 1 Qualifier: PCS

TOTAL WEIGHT AND CHARGES:
Weight: 634.0 Qualifier: E Unit qualifier: L
Freight rate: .0 Qualifier:
Charge: 300.00
Advances: .0
Prepaid amount: .0
Volume: 24.0 Unit qualifier: E
Lading quantity: 5

FIG. E-5. (Continued)

STATISTICAL REPORT

PART 1: INCOMING DATA

DATE	NAME	FULL NAME	SOURCE	204	210	213	214	980	996	997	1000's OF BYTES
861105	CFWY	CONSOLIDATED	CFWY	0	4	0	0	0	0	0	3.2
861105	ROBINS	ROBINS AFB	ROBINS	5	4	0	0	0	0	0	7.8
TOTAL FOR THE MONTH				5	8	0	0	0	0	0	11.0
FINAL TOTAL				5	8	0	0	0	0	0	11.0

FIG. E-6

STATISTICAL REPORT

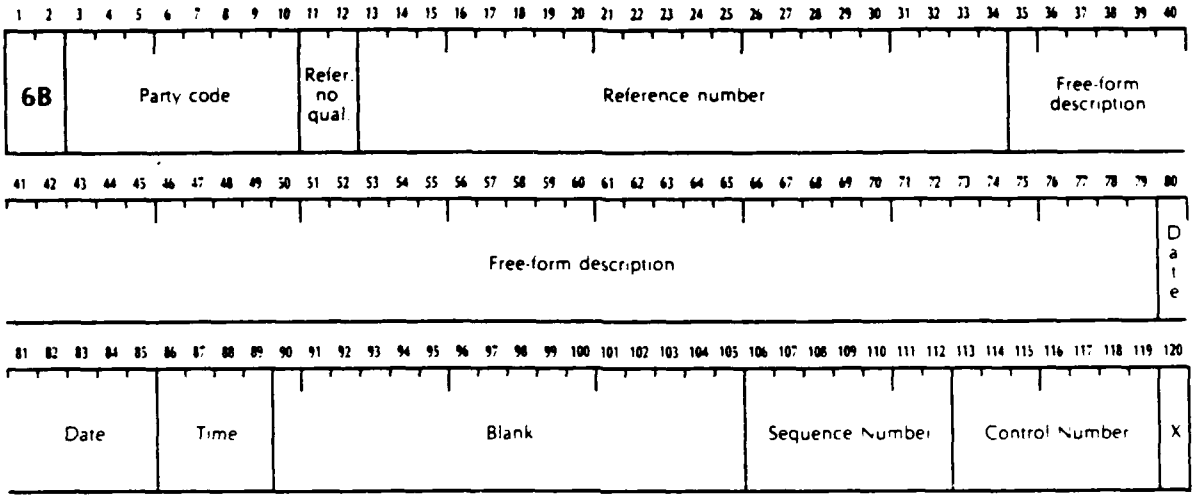
PART 2: OUTGOING DATA

DATE	NAME	FULL NAME	SOURCE	204	210	213	214	980	996	997	1000's OF BYTES
861105	CFWY	CONSOLIDATED	CFWY	0	0	0	0	0	0	[illegible]	[illegible]
861105	ROBINS	ROBINS AFB	ROBINS	0	0	0	0	0	0	[illegible]	[illegible]
TOTAL FOR THE MONTH				0	0	0	0	0	0	2	0.4
FINAL TOTAL				0	0	0	0	0	0	2	0.4

FIG. E-6. (Continued)

6B

Reference Number Record



Field Definitions:

POSITIONS	LEN	TY	ELEMENT NAME	REQ	REMARKS	REF DESIG	ELE NO.
1-2	2	AN	Record type code	M	This code equals **6B** and identifies the record as a **Reference Number** type.		
3-10	8	AN	Party code	M	This field identifies the user's code for the party involved in the communication. The name/password table contains the party's code, modem telephone number and password		
11-12	2	ID	Reference number qualifier	M	Code to identify the type of reference number	N901	128
13-34	22	AN	Reference number	C	Reference number or identification number as defined for a particular transaction set or as specified by data element 128	N902	127
35-79	45	AN	Free-form description	C	Free-form description text.	N903	369
80-85	6	DT	Date	O	Date (YYMMDD)	N904	373
86-89	4	TM	Time	O	Local time (HHMM) of the sender of the transaction set, expressed in 24-hour clock time	N905	337
90-105	16		Blank				

FIG. E-7

Field Definitions:

POSITIONS	LEN	TY	ELEMENT NAME	REQ	REMARKS	REF DESIG	ELE NO.
106-112	7	N	Sequence number	M	Values are assigned by TELINK to this field. It is used in several processes to insure proper sorting.		
113-119	7	N	Control number	-	Values are assigned by TELINK to this field. It is used in several processes to insure proper sorting and control.		
120	1	A	Record delimiter	M	This field equals X when preparing records and is changed after TELINK processing. It insures that the record has a constant length of 120 characters (not including the carriage return and line feed codes at the end of the record). After processing by TELINK, this position becomes part of the control number field, making the total length of that field equal to 8.		

Notes:

1) Information in this record appears in the following segments:
N9 Reference Number

2) Either the Reference Number (positions 13-34) or the Free-form Description (positions 35-79) is required.

FIG. E-7. (Continued)

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

==========Part 1: RFI/TDR/Research Required==========

Shipments with:
- o No Request For Information (RFI) date or no Descrepancy Report (TDR) date
- o No Actual Delivery Date (ADD)
- o BL receipt date 30 or more days ago

Or shipments with:
- o No RFI and TDR dates
- o ADD 7 or more days ago

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code
C2700278	DDMP	OVNT	870630						
C2700764	DDMP	OVNT	870701						
C2700773	DDMP	OVNT	870701						
C2700911	DDMP	OVNT	870702						
C2701185	DDMP	OVNT	870703						
C2701664	DDMP	OVNT	870704						
C2702163	DDMP	OVNT	870707						
C2702331	DDMP	OVNT	870708						
C2702542	DDMP	OVNT	870709						
C2702873	DDMP	OVNT	870710						
C2703202	DDMP	OVNT	870711						
C2703298	DDMP	OVNT	870713						
C2703478	DDMP	OVNT	870713						
C2703582	DDMP	OVNT	870714						
C2704968	DDMP	OVNT	870720						
C2705100	DDMP	OVNT	870721						
C2705109	DDMP	OVNT	870721						
C2705162	DDMP	OVNT	870721						
C2706795	DDMP	OVNT	870727						

FIG. E-8.

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

======Part 2: RFI FU and TDR Required=======

Shipments with:

- o Request For Information (RFI) date but no RFI Follow-up (RFI FU) date and no Descrepancy Report (TDR) date
- o RFI date 50 or more days ago

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code

FIG. E-9.

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

==========Part 3: TDR FU Required==========

Shipments with:

- o Descrepancy Report (TDR) date
- o TDR date 60 or more days ago

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code

FIG. E-10.

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

=====Part 4: Received and Action Required=====
Shipments with:

- o Actual Delivery (ADD) date but
  no Request For Information (RFI) date
  and no Descrepancy Report (TDR) date
- o File not completed
- o ADD less than 7 days ago

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code

FIG. E-11.

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

==========Active Shipments==========

Shipments for all records not completed

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code
C0462618	OVNT	OVNT	870821						
C0462618	OVNT	OVNT	870821						
C0469335	OVNT	OVNT	870821						
C0469335	OVNT	OVNT	870821						
C0469448	OVNT	OVNT	870821						
C0469448	OVNT	OVNT	870821						
C0469536	OVNT	OVNT	870821						
C0469536	OVNT	OVNT	870821						
C0469569	OVNT	OVNT	870821						
C0469569	OVNT	OVNT	870821						
C0709216	SCNN	SCNN	870821						
C0709216	SCNN	SCNN	870821						
C0709218	SCNN	SCNN	870821						
C0709218	SCNN	SCNN	870821						
C1462618	OVNT	OVNT	870821						
C1462618	OVNT	OVNT	870821						
C1469335	OVNT	OVNT	870821						
C1469335	OVNT	OVNT	870821						
C1469569	OVNT	OVNT	870821						
C1469569	OVNT	OVNT	870821						
C2440209	ROBINS	PIEC	870806						
C2440211	ROBINS	PIEC	870806						
C2440213	ROBINS	PIEC	870806						
C2440214	ROBINS	PIEC	870806						
C2440215	ROBINS	PIEC	870806						
C2440216	ROBINS	PIEC	870806						
C2440217	ROBINS	PIEC	870806						
C2440220	ROBINS	THUR	870806						
C2440224	ROBINS	PIEC	870806						
C2700278	DDMP	OVNT	870630						
C2700764	DDMP	OVNT	870701						
C2700773	DDMP	OVNT	870701						
C2700911	DDMP	OVNT	870702						
C2701185	DDMP	OVNT	870703						
C2701664	DDMP	OVNT	870704						
C2702163	DDMP	OVNT	870707						
C2702331	DDMP	OVNT	870708						
C2702542	DDMP	OVNT	870709						
C2702873	DDMP	OVNT	870710						
C2703202	DDMP	OVNT	870711						
C2703298	DDMP	OVNT	870713						
C2703478	DDMP	OVNT	870713						
C2703582	DDMP	OVNT	870714						
C2704968	DDMP	OVNT	870720						
C2705100	DDMP	OVNT	870721						
C2705109	DDMP	OVNT	870721						
C2705162	DDMP	OVNT	870721						
C2706795	DDMP	OVNT	870727						
C2707418	DDMP	OVNT	870729						
C2707999	DDMP	OVNT	870731						

FIG. E-12.

SHIPMENT STATUS REPORT

BILL LADING RECEIPT DATES: 870101 TO 870826

Report Made 870826, Time 1456

==========Active Shipments==========

Shipments for all records not completed

GBL Number	Shipper	SCAC	Bill of Lading Receipt Date	Actual Delivery Date (ADD)	Request For Information Date (RFI)	RFI Follow-up Date (RFI FU)	Transportation Descrepancy Report Date (TDR)	TDR Follow-up Date (TDR FU)	Status Code
C2708029	DDMP	OVNT	870731						
C2708289	DDMP	OVNT	870801						
C2709604	DDMP	OVNT	870807						
C2710296	DDMP	OVNT	870810						
C2711075	DDMP	OVNT	870807						
T3462618	CFWY	CFWY	870821						
T3462618	CFWY	CFWY	870821						
T3469335	CFWY	CFWY	870821						
T3469335	CFWY	CFWY	870821						
T3469448	CFWY	CFWY	870821						
T3469448	CFWY	CFWY	870821						
T3469556	CFWY	CFWY	870821						
T3469556	CFWY	CFWY	870821						
T3469569	CFWY	CFWY	870821						
T3469569	CFWY	CFWY	870821						

FIG. E-12. (Continued)

RECONCILIATION OF TRANSACTION SETS 204 AND 210
AUG 03, 1987 14:48 PAGE 1

CARRIER SCAC	SHIPMENT ID	DATE 204 / 210	WEIGHT 204 / 210		VOLUME 204 / 210		AMOUNT 204 / 210		AMOUNT DIFFERENCE DOLLARS / PERCENT		DISCREPANCY CODE
CFWY	C2439829	870724 870727	1973.0	1973.0	133.0	.0 #	188.00	188.20	.20	.11	
"	C2440065	870730 870730	229.0	203.0 #	34.0	.0 #	44.00	43.99	-.01	-.02	
CVNT	C2706795	870720 870720	58.0	58.0	6.5	.0 #	25.00	23.80	-1.20	-4.80	
"	C2707999	870724 870724	1642.0	1642.0	72.8	.0 #	108.00	102.00	-6.00	-5.56	C
"	C2708029	870724 870724	9500.0	9900.0 #	635.7	.0 #	400.00	319.00	-81.00	-20.25	BC
SCNN	C0721680	870729		5750.0		.0		536.40			A
"	C0721738	870727 870729	19766.0	19766.0	1757.0	.0 #	398.00	398.10	.10	.03	
"	C0721966	870729		5750.0		.0		536.40			A
"	C0722370	870728		20451.0		.0		398.10			A
"	C0722464	870729		23124.0		.0		989.04			A
"	C0722571	870729 870730	23552.0	24102.0 #	1768.0	.0 #	398.00	398.10	.10	.03	
"	C0723206	870721 870731	18709.0	19609.0 #	1711.0	.0 #	872.00	824.56	-47.44	-5.44	BC
"	C0723473	870723 870728	26802.0	27302.0 #	1675.0	.0 #	803.00	789.02	-13.98	-1.74	B
"	C0723475	870723 870728	20616.0	21316.0 #	1875.0	.0 #	510.00	444.10	-65.90	-12.92	BC
"	C0723482	870724 870728	12374.0	26438.0 #	1515.0	.0 #	774.00	736.32	-37.68	-4.87	B
"	C0723518	870729		13171.0		.0		536.40			A
"	C0723589	870729		15780.0		.0		608.02			A
"	C0723590	870730		20278.0		.0		2436.80			A
"	C0723682	870729		12000.0		.0		608.02			A
"	C0723774	870729		27032.0		.0		378.70			A
"	C0723809	870727 870729	27499.0	27899.0 #	1747.0	.0 #	939.00	910.42	-28.58	-3.04	B
"	C0723811	870727 870730	8967.0	9217.0 #	723.0	.0 #	1434.00	1275.96	-158.04	-11.02	BC
"	C0723858	870727 870729	24381.0	24781.0 #	1292.0	.0 #	368.00	368.10	.10	.03	
"	C0723942	870728 870730	976.0	5420.0 #	85.0	.0 #	239.00	536.40	297.40	124.44	BC
"	C0723948	870730		22400.0		.0		584.32			A
"	C0724036	870728 870729	26566.0	26766.0 #	1380.0	.0 #	805.00	760.56	-44.44	-5.52	BC
"	C0724037	870728 870730	19762.0	19342.0 #	1829.0	.0 #	510.00	444.10	-65.90	-12.92	BC
"	C0724039	870729 870730	34485.0	34485.0	1034.0	.0 #	335.00	317.70	-17.30	-5.16	BC
"	C0724177	870730 870731	16318.0	16418.0 #	1429.0	.0 #	394.00	375.70	-18.30	-4.64	B

DISCREPANCY CODE KEY: A = NO OUTSTANDING 204 THAT CORRESPONDS TO 210 SHOWN
B = AMOUNT DISCREPANCY EXCEEDS $ 10.00
C = AMOUNT DISCREPANCY EXCEEDS 5.00 PERCENT

FIG. E-13.

USAFAC OUTSTANDING TRANSACTION SETS 204
NOV 05, 1986 20:30

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CARRIER SCAC	GBL	DATE	WEIGHT	VOLUME	AMOUNT
CFWY	T3469448	861015	225.0	29.0	141.00
CFWY	T3469556	861015	1913.0	163.0	133.00

FIG. E-14.

GBL/FREIGHT BILL REPORT

PRINTED 08-03-1987 13:40:17

No corresponding 204 for GBL number: C0722370 ...

GBL number: C0723473 GBL Ship date: 870723 Billing date: 870728

NOTE:, CHARGES BASED ON FR - FLAT RATE

GBL number: C0723475 GBL Ship date: 870723 Billing date: 870728

NOTE:, CHARGES BASED ON FR - FLAT RATE

GBL number: C0723482 GBL Ship date: 870724 Billing date: 870728

NOTE:, CHARGES BASED ON FR - FLAT RATE

No corresponding 204 for GBL number: C0723774 ...

GBL number: C0723809 GBL Ship date: 870727 Billing date: 870729

NOTE:, CHARGES BASED ON FR - FLAT RATE

GBL number: C0721738 GBL Ship date: 870727 Billing date: 870729

NOTE:, CHARGES BASED ON FR - FLAT RATE

GBL number: C0724036 GBL Ship date: 870728 Billing date: 870729

NOTE:, CHARGES BASED ON FR - FLAT RATE

No corresponding 204 for GBL number: C0723518 ...

No corresponding 204 for GBL number: C0721866 ...

No corresponding 204 for GBL number: C0721680 ...

No corresponding 204 for GBL number: C0723589 ...

No corresponding 204 for GBL number: C0723682 ...

FIG. E-15.

GBL/FREIGHT BILL RECORDS

05-21-1987 14:23:50

GBL Number: C0711821 Estimated Charges (from 204): 659.00 Cost Differ: 9.10
Carrier's SCAC: SCNN Amount Billed (from 210): 668.10 % Differ: 1.4
Carrier's Billing No: I995895 Rating Service Calculation:
Shipper: Special Rate Authorized: Freight Rate:

Participating Carrier SCAC's: SCNN Equipment: AV Admin Whgt Allow: 20 Num Trck Lds: 15
Route Order Release Number: Move: Total Weight: 20611.0 Tot Cubic Ft: 19
Order Number: Rate: Billed Weight: Line Haul Chgs: 668.10
Stop-offs(204): 5 Stop-offs(210): 4 Package: Freight Code: Protec Ser Chg:

	SPLC/City	ST	ITO	GBLOC	GBLOC	DODAAC
Origin:	NEW CU	PA				
Destination:			BMFL			

Name: PROF-Books-Equip:
SSAN: Payee Code Number:

DATES							CODES							
Pickup	Frt Rec	Deliv	Req Del	Req Shp	Storage	Authority	ProServ	Cntry	BillUnt	Reas	Mode	MOC	BillAmt	FrtInd	Pay
				870507					P		AV		P		

Appropriation Number	Prorated Amount
21X4992.06PM 6P S36028 2200	6.60
21X4992.06PM 6P S36028 2200	8.86
21X4992.06PM 6P S36028 2200	1.64
21X4992.06PM 6P S36028 2200	2.23
21X4992.06PM 6P S36028 2200	5.97
21X4992.06PM 6P S36028 2200	12.17
21X4992.06PM 6P S36028 2200	3.22
21X4992.06PM 6P S36028 2200	5.91
21X4992.06PM 6P S36028 2200	2.33
21X4992.06PM 6P S36028 2200	4.56
21X4992.06PM 6P S36028 2200	10.76
21X4992.06PM 6P S36028 2200	113.01
21X4992.06PM 6P S36028 2200	3.58
21X4992.06PM 6P S36028 2200	22.38
21X4992.06PM 6P S36028 2200	10.76
21X4992.06PM 6P S36028 2200	3.74
21X4992.06PM 6P S36028 2200	2.46

Appropriation Number	Prorated Amount
21X4992.06PM 6P S36028 2200	1.38
21X4992.06PM 6P S36028 2200	1.94
21X4992.06PM 6P S36028 2200	7.38
21X4992.06PM 6P S36028 2200	111.69
21X4992.06PM 6P S36028 2200	1.64
21X4992.06PM 6P S36028 2200	1.87
21X4992.06PM 6P S36028 2200	2.82
21X4992.06PM 6P S36028 2200	9.12
21X4992.06PM 6P S36028 2200	4.43
21X4992.06PM 6P S36028 2200	64.58
21X4992.06PM 6P S36028 2200	48.43
21X4992.06PM 6P S36028 2200	45.12
21X4992.06PM 6P S36028 2200	32.16
21X4992.06PM 6P S36028 2200	2.63
21X4992.06PM 6P S36028 2200	3.22
21X4992.06PM 6P S36028 2200	105.07
21X4992.06PM 6P S36028 2200	4.46

FIG. E-16

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In a previous study for the Office of the Secretary of Defense, we found that the private sector was beginning to make extensive use of techniques for the electronic exchange of transportation information. We also concluded that those techniques – Electronic Data Interchange (EDI) – could be applied in Defense Transportation and proposed that DoD undertake a demonstration test to establish the feasibility of electronically exchanging Government Bill of Lading and freight invoice information between its transportation activities and private motor carriers. This report presents the results of that test.

Test results show that the DoD can substantially reduce its transportation paperwork by using EDI techniques to pass transportation information. The benefits from doing so include reduced clerical effort, greater accuracy, and more timely information. For the DoD to obtain those benefits, some organizations will find it necessary to realign organizational and functional responsibilities and to change business methods and operating procedures. To ensure that the DoD embarks on an effective and productive EDI program, we recommend that the Assistant Secretary of Defense (Production and Logistics) prepare a long-range plan for implementing EDI, upgrade DoD's largest freight payment center to operate in an electronic environment, and prescribe use of the EDI standard developed by the transportation industry.

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